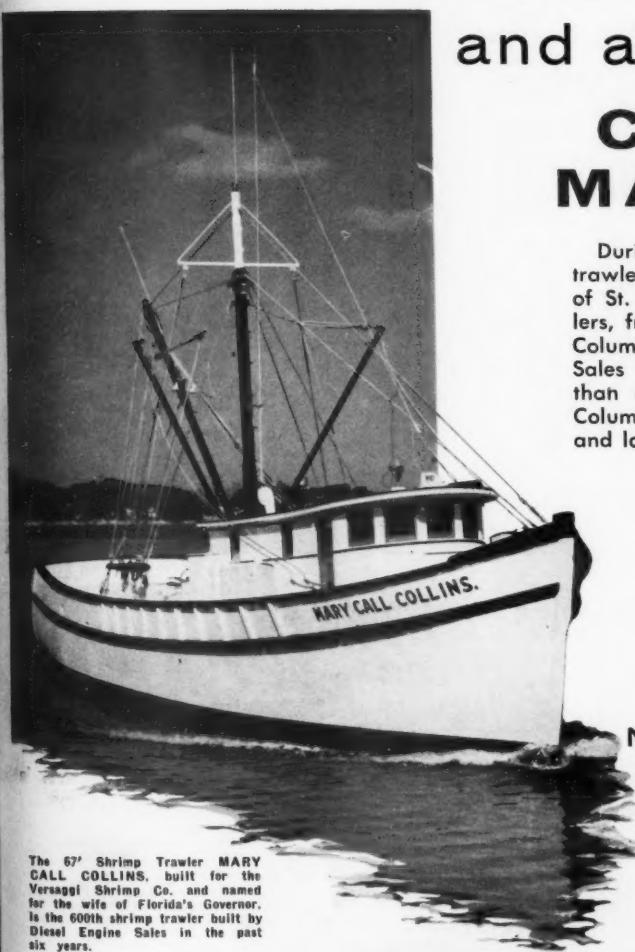


APR 23 1957

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**COLUMBIAN
MANILA ROPE**



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During the past six years, no less than 600 shrimp trawlers have been built by Diesel Engine Sales, Inc., of St. Augustine, Fla. And every one of these trawlers, from No. 1 to No. 600, has been equipped with Columbian Manila Rope. Since 1951, Diesel Engine Sales has probably launched more shrimp trawlers than any other yard in the country—its choice of Columbian Rope reflects both expert knowledge and long experience.

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NYLON THAT WON'T UNRAVEL!

Columbian's exclusive stabilization process, (Patent 2,343,892)
keeps Nylon rope from
unraveling when ends are cut.
Easy to splice.

COLUMBIAN ROPE Company,
Auburn, "The Cordage City", N. Y.

The only rope with the red, white, and blue markers



LOOK



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OVER 70 Chrysler-powered boats in the Libby fleet! And the number is growing! As new boats are added to the fleet they are powered by *Chrysler*! As other engines wear out they are being replaced by *Chrysler*! Remarkable proof of the outstanding operating economy and complete dependability of Chrysler Marine Engines.

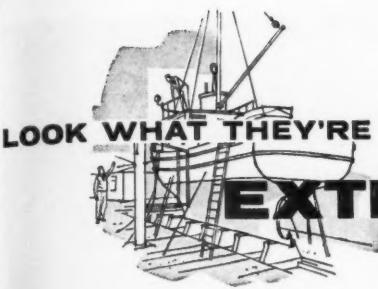
See your Chrysler Marine Engine Dealer for detailed information or write:
Dept. 4K, Marine Engine Division, Chrysler Corporation, Detroit 31, Mich.

PICTURED LEFT(top to bottom): LIBBY 21, a 37-foot purse seiner; one of 27 Chrysler-powered boats operating out of Moser Bay. OTTER, a 71-foot power scow; one of 38 Chrysler-powered boats operating out of Koggiung. LIBBY "K-6," a 29-foot gillnetter; one of 14 Chrysler-powered boats out of Kenai.

America's No. 1 Marine Engine

CHRYSLER
MARINE ENGINE DIVISION • CHRYSLER CORPORATION

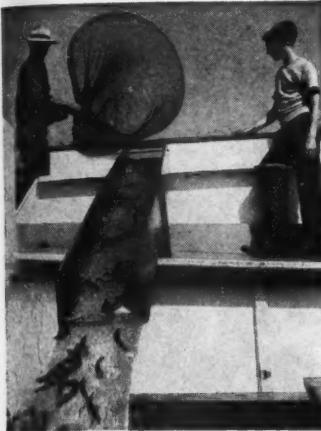
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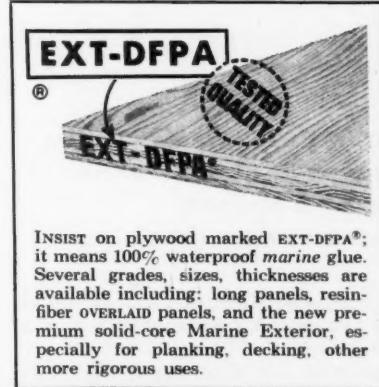
LOOK WHAT THEY'RE DOING WITH

EXTERIOR FIR PLYWOOD

a quick review of ideas and developments
in marine construction and accessories

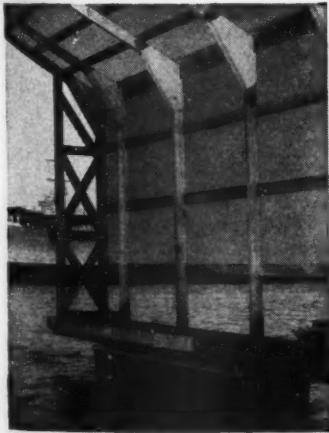


EXTERIOR-TYPE fir plywood is real wood in large, light, easy-to-work panels. Plys are cross-laminated for extra strength and rigidity...bonded for rugged durability with 100% water- and weather-proof marine glue. Exterior fir plywood is proved by thousands of marine applications—in every phase of boat construction and repair, as well as in docks, ramps, floats and storage sheds. New uses are constantly being developed. You'll find it to be your most versatile, and most economical, all-around marine construction material.



INSIST on plywood marked EXT-DFPA®; it means 100% waterproof marine glue. Several grades, sizes, thicknesses are available including: long panels, resin-fiber OVERLAIN panels, and the new premium solid-core Marine Exterior, especially for planking, decking, other more rigorous uses.

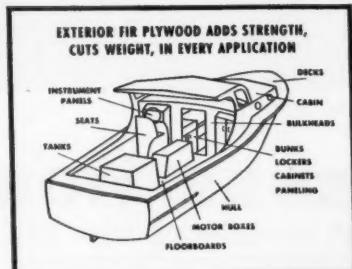
EXTERIOR fir plywood chutes speed delivery of bait from all-wooden bait-boat *Aquarius*, designed by Phillip H. Thearle for Mauricio & Sons, San Diego. Builders used EXT-DFPA for hull, superstructure, tanks, interiors... estimate a $\frac{1}{3}$ saving in labor costs.



EXTERIOR fir plywood top plate provides the rigidity required to make these plastic pontoons practical, cuts previously prohibitive cost. Developed by Richard L. Drues, of Northwest Design Co., for Port Yacht Basin, both of Tacoma, Washington. Roof gusset plates also are EXT-DFPA®.



INCREASED SPEEDS of 1 to $2\frac{1}{2}$ knots are made possible by light-weight fir plywood construction of this prototype LCVP. Developed by naval architect George W. Moore of Kettenburg Boat Works, San Diego, the all-plywood craft was built at request of U. S. Navy Bureau of Ships. From 1,000 to 1,500 pounds lighter than conventional models, this plywood prototype has passed tests approximating four year's service.



DOUGLAS FIR PLYWOOD ASSOCIATION

Tacoma 2, Washington, Dept. 204 (Good USA only)
Please send me information about EXT-DFPA® for marine use. I am interested in using fir plywood for _____

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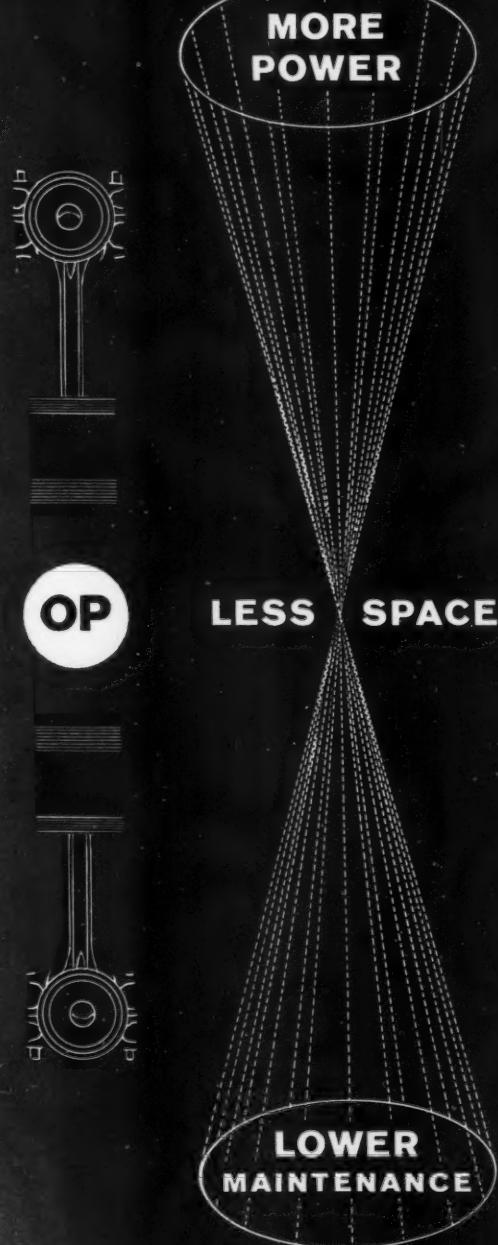
Opposed-Pistons . . . of equal weight reacting to combustion in a single cylinder liner producing more power in less floor space with less weight—power that is instantly responsive with practically no vibration.

Two-Cycle Design . . . that completely eliminates more than 40% of the moving—wearing—parts found in engines of comparable horsepower. No cylinder heads, no valves or intricate timing with its attendant adjustments. Fewer parts automatically means less maintenance. Low B.M.E.P. further reduces wear.

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Insist on an O-P for your vessel in the 300 to 2400 horsepower class and see what top performance, reliability and economy can mean on every trip. For complete information to get you started write: Fairbanks, Morse & Co., Dept. NAF-4, Chicago 5, Ill.



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NATIONAL FISHERMAN

The Fishing Industry Magazine

Fresh Fish Market Should Not Be Overlooked

With the large amount of attention that has been focused on frozen seafoods during the last few years, fresh fish and shellfish might appear to have taken a back seat.

However, in spite of the increased popularity and wider distribution of frozen products, fresh fish still commands a sizable part of the market. Approximately 900 million pounds or 20 percent of the total United States catch is sold in fresh form for food use.

Many varieties are marketed only as fresh fish and shellfish; others are distributed in fresh state to a large extent.

A substantial preference exists for fresh fishery products, particularly in areas that are relatively close to the seaboard and the Great Lakes. Good quality fresh fish and shellfish frequently bring a premium price.

Some segments of the fishing industry are largely dependent on fresh fish trade, and the question arises as to what is being done to promote such business.

A good example of activity along this line is the mullet market analysis project undertaken by the Marine Laboratory of the University of Miami. Mullet is the most important finfish in Florida's fisheries economy, and the bulk of the catch goes to market in fresh form. In recent years the demand and prices for mullet have been affected by increased competition from other varieties of fish.

Studies on mullet included an evaluation of the present methods of handling, preserving, packaging, shipping and selling, with the objec-

tive of bringing new ideas to the industry.

Findings of the Florida project indicate that a highly important factor in the loss of markets for fresh fish has been inferior quality. This has been caused by fish being inadequately cared for from the time of catching to the time of sale to the consumer.

Recommendations to the industry by the Florida investigators center around three major points: better quality; new product development; advertising and promotion.

The report states that in order to assure the consumer of quality products, there could be improvements, for instance, in the methods of pre-chilling and boxing fish.

As indicated by the Florida project, an increased demand can be developed for fresh packaged fish products. With the new packaging methods and materials now available, it is possible to pack fresh fish and shellfish so that it will be simpler to handle, will retain its freshness better, and will have more attractive appearance.

The fast refrigerated transportation now available, plus the modern refrigerated display facilities in retail outlets, offer greatly improved opportunities for getting fresh fish to the consumer in prime condition.

The importance of the market for fresh fish should not be overlooked; it is a profitable phase of the industry's output. Fuller advantage of the market for fresh fish and seafood can be gained through careful handling procedures that will insure maximum product appeal.

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ENGINEER'S FIELD REPORT

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RPM DELO OIL

APPLICATION

M/V NEW HOLIDAY

San Francisco, Calif.



No carbon deposits in two years of using RPM DELO Oil

Inspection of M/V New Holiday's 200-h.p. GMC diesel after two years' operation on RPM DELO Oil showed no carbon build-up, sludge or deposits of any kind. The 47½-foot, all-steel sport fishing cruiser operates daily charter trips out of San Francisco's Fisherman's Wharf. Fred Morini, owner and skipper of the vessel, says, "I know from experience RPM DELO Oil will keep this engine in top condition; it kept the engine in my previous boat trouble-free. When you're 30 miles beyond the Golden Gate you can't risk an engine breakdown. That's why I rely on RPM DELO Oil."



For More Information about RPM DELO Oils or other petroleum products of any kind, or the name and address of your nearest distributor, write or call any of the companies listed below.

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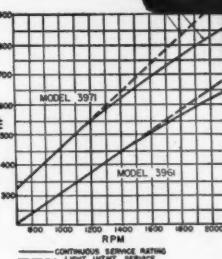
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The new S-N 3900 Series hydraulically actuated gears are designed especially for high-speed, heavy-duty diesel engines from 200 to 800 horsepower. They embody the most advanced features and are engineered for maximum dependable power. Whether you are a single boat or fleet operator, marine distributor or engine manufacturer, you will want all the facts on the 3900 Series for new installations and for repowering. See your S-N distributor or write direct for further information.

APRIL, 1957 - NATIONAL FISHERMAN



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B.F.Goodrich



Float insurance for a \$40,000 net

"There's nothing like Spongex® plastic seine floats. They are light, tough, durable and economical—and the best possible insurance for protecting a net" says Anton Misetich, skipper and part owner of the Anthony M, San Pedro, California.

"Our net cost about \$40,000", he continued, "but its worth at sea exceeds all monetary considerations. Since our livelihood depends on this net, it is simply good business and common sense to use the finest seine floats.

"To support the net we use 4920 Spongex floats—with cork we would need 6560. Besides this, Spongex floats are three times lighter and do not become water logged with continued use."

Skipper Misetich is a member of the Fishermen's Cooperative Association, a



group of 150 boats using over 200,000 Spongex floats.

Mr. Mason Case, general manager of the Cooperative, which incidentally is the largest fish producing organization tonnagewise in the nation, says, "Spongex floats have a very small replacement factor, occasioned only by accident—the breakage average in four years' experience is about 1% per year.

The proof of their success is shown by the fact it's the only float we can sell today".

Spongex floats are available in a variety of sizes ranging from $1\frac{1}{2}'' \times 3''$ to $6'' \times 7\frac{1}{2}''$. If you are interested in having Spongex floats for your fishing operation, write to B. F. Goodrich Sponge Products, a division of The B. F. Goodrich Company, 392 Derby Place, Shelton, Connecticut. Made under Pat. No. 2,737,503



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► McKernan Heads Fisheries Bureau

Donald L. McKernan, Administrator, Alaska Commercial Fisheries, has been selected as Director of the new Bureau of Commercial Fisheries, subject to approval of United States Civil Service Commission. Designated as Assistant Director was Andrew W. Anderson, Chief of Branch of Commercial Fisheries.

Mr. McKernan transferred to position of Administrator of Alaska Commercial Fisheries in June 1955, after having served for three and one-half years as Assistant Director of Fish and Wildlife Service's Pacific Oceanic Fishery Investigations in Honolulu, Hawaii.

Mr. Anderson joined the old Bureau of Fisheries in 1930 as a statistical and market agent. In 1937 he organized the Fishery Market News Service, and in 1943 was named Chief of Branch of Commercial Fisheries.

► Boat Seizure Legislation

Congressman Herbert Bonner of North Carolina, chairman of House Merchant Marine and Fisheries Committee, recently introduced H. R. 5526 in Congress to amend Fishermen's Protective Act. That Act provides that the Government shall reimburse vessel owners for a fine paid in order to secure prompt release of a vessel and its crew seized by a foreign country on basis of rights or claims in territorial waters or high seas which are not recognized by United States.

Bonner Bill would amend the Act so as to extend obligation of Government to reimburse owners and crews, not only for fines paid, but for all expenses incurred by reason of a seizure, where seizure took place beyond limits recognized by United States. Congressman Bonner believes whole subject merits re-examination to determine whether existing legislation is sufficient to protect fishermen and other Americans in their rights on high seas.

► Applications for Fishery Loans

Applications for fishery loans as of March 18 totaled \$6,335,000 or nearly two-thirds of \$10,000,000 made available for this purpose by Fish and Wildlife Act of 1956. Of the 163 applications accepted for processing, 66 are from New England, for a total of \$2,207,000, while 64 are from Pacific Coast States, for \$3,218,000. Balance of applications are from other sections of country and from Hawaii and Alaska.

There have been 61 applications approved, amounting to \$1,854,940, since loan program began last October. Of these, 25 totaling \$861,789 were to fishermen in New England; 16 totaling \$572,631 to fishermen in Pacific Coast States; five totaling \$323,050 to those in South Atlantic and Gulf States; four totaling \$29,220 to freshwater fishermen; and 11 totaling \$68,250 to Alaskan fisher-

FISHERY PROGRESS

men. Twelve loan applications for \$161,500 have been declined during same period.

► Gain in Additions to Fleet

Total of 57 fishing vessels of 5 net tons and over was documented for first time during first two months of 1957—an increase of 14 craft, or 33 percent compared with corresponding period last year. Chesapeake led all other areas with 17 newly-documented vessels, followed by South Atlantic with 11, Gulf of Mexico with 10, Alaska with 6, Pacific and Middle Atlantic with 5 each, and New England with 3.

► Johnson, Aide to Commissioner

Robert H. Johnson has been appointed to position of special assistant to Commissioner of Fish and Wildlife Arnie J. Suomela. Mr. Johnson, before coming to Fish & Wildlife Service, was prominent in New England conservation circles. From 1948 to 1955, he was director of Massachusetts Division of Fisheries and Game, and since 1955 has been assistant director of Fish & Wildlife Service, in charge of wildlife program.

► Ask Fish Import Investigations

Congressmen Hubert B. Scudder of California and Russell V. Mack of Washington State have introduced resolutions that would direct Tariff Commission to make full investigation of fishery imports and their effect on domestic production, labor, sales, etc. Both resolutions refer to crabmeat, oysters, tuna, salmon, and other fishery products.

General Court of Massachusetts, which comprises both House and Senate of that State, has forwarded on to Congress a memorial urging increased tariffs and quotas on imported fishery products. The memorial was introduced in Congress by Joseph Martin of Massachusetts.

In meantime, there is pending in State of Washington Legislature, a joint memorial which petitions President and Congress to limit further importation of fish liver oil "on such a strict quota basis as to bring back that amount normally produced by American Fishermen"; to place an adequate tariff or quota on imports of crab and groundfish; and to supplement action taken at Geneva Conference where tariffs on tuna were reduced, by exercising emergency clause to bring tariff back to 45 percent level it was prior to the conference.

► Seek Coordinated Pacific Laws

United States and Canadian conferees on March 1 recommended coordinated regulations in oceanic

salmon and certain other fisheries in Pacific Ocean. Nets in offshore salmon fishing will not be permitted. Spring or chinook salmon troll fishing season will open not earlier than April 15 and will close October 31. The June 15 opening date on trolling for silvers or cohos will remain unchanged. Troll-caught chinook salmon will be required to be 26 inches minimum length or an equivalent minimum weight. In petrale sole fishery, a uniform closed season from December 20 to April 15 will be established.

The meetings, which were held in Salmon Bay Regional Office of Washington Department of Fisheries, were attended by officials from U. S. Fish and Wildlife Service, Department of State, Canada, members of Legislatures and officials of Pacific Coast States, as well as Commissioners of Pacific Marine Fisheries Commission and advisors from industry.

Washington, Oregon, and California are moving needed laws through current Legislatures. Canada can put into effect by administrative action such regulations as are necessary. It is planned that this coordinated system of regulations will take effect in the three States and Canada in time for the coming fishing seasons. Failure of action in any one of the four jurisdictions may jeopardize entire program.

► F&WS Reorganization Funds

Senate Subcommittee on Interior Appropriations began its hearings last month. Among those items being sought are approximately \$900,000 which was deleted from House bill, to be used in reorganization of Fish and Wildlife Service.

► Pink Salmon Regulation Bill

Representative Tollefson of Washington on April 2 introduced a bill, H.R. 6587, to amend Sockeye Salmon Fishery Act of 1947. This bill would extend regulatory authority of International Pacific Salmon Fisheries Commission to include pink salmon as well as sockeye salmon.

► Less Groundfish Fillet Imports

Total groundfish and ocean perch fillet imports into United States during first two months of 1957 amounted to 26.0 million pounds, compared with 26.5 million pounds during same period of 1956. Canada, with 18.6 million pounds, led all other countries exporting fillets to this country, followed by Iceland, with 5.1 million pounds, and Norway, with 1.9 million pounds. These three countries accounted for 98 percent of total groundfish and ocean perch fillet imports for first two months of 1957.

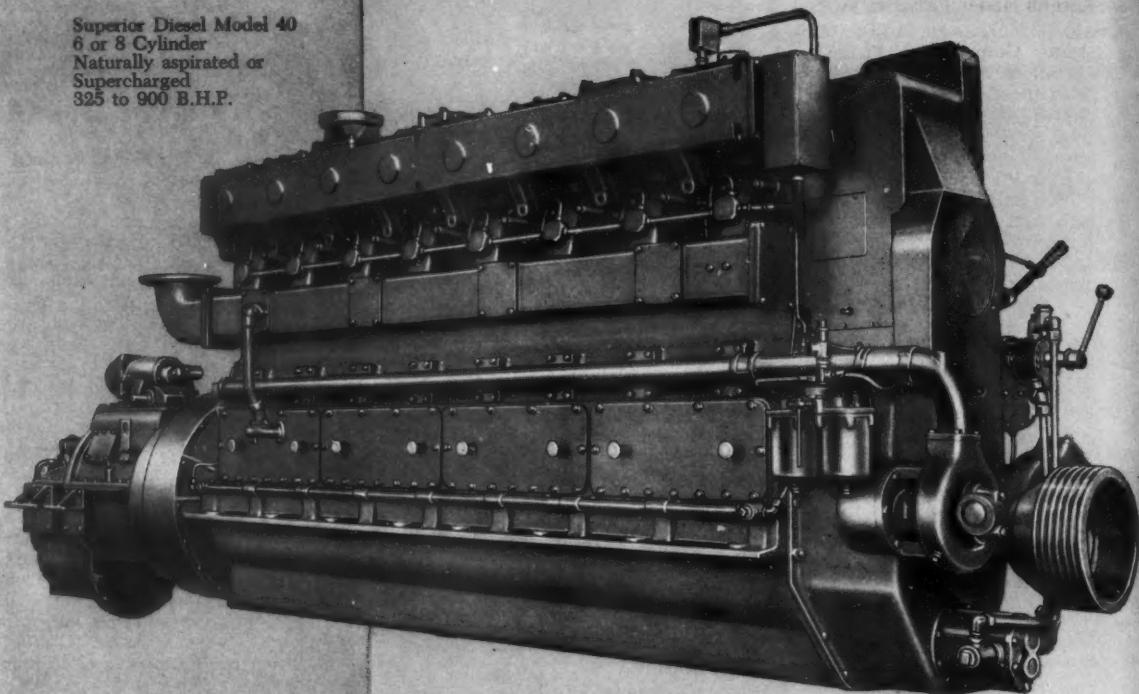


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tortion effect on engine, provides better alignment with propeller shaft thereby reducing vibration. It absorbs firing thrust, reduces stress on the block to greatly lengthen engine life.

SIMPLICITY OF RUGGED CYLINDER BLOCK provides larger than usual access to bearings, camshaft and fuel pumps for easier routine maintenance. Keeps downtime for servicing to a minimum.

INDIVIDUAL CYLINDER HEADS, LINERS, FUEL PUMPS are specifically designed for longest service life. This simplifies maintenance, provides greater performance dependability.

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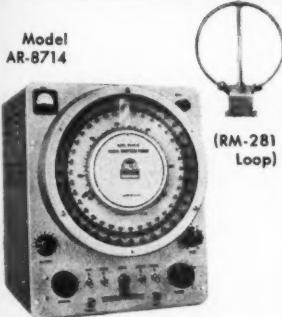
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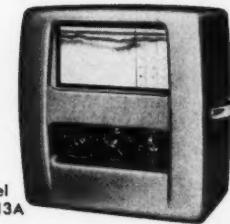
RCA Direction Finders enable you to take accurate bearings on radio beacons. Help you navigate through fog and darkness. New small fixed loop designed for space saving installation. Versatile operation.

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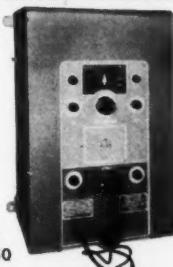
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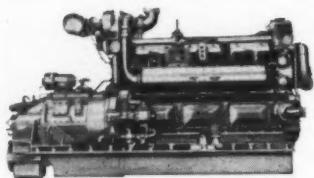
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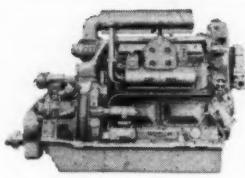
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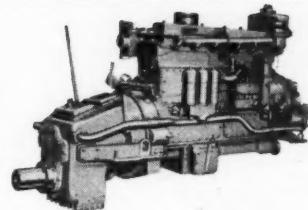
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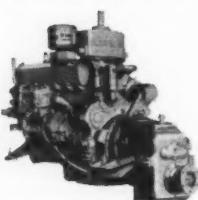


D342 **150 HP**
naturally aspirated continuous

Also available as an electric set. Starting system: air, electric or gasoline.

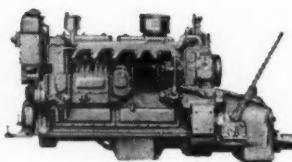
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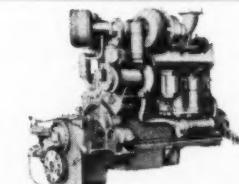
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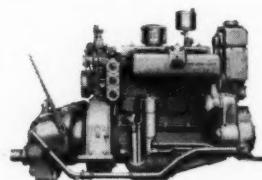
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Also available as an electric set. Starting system: air, electric or gasoline.



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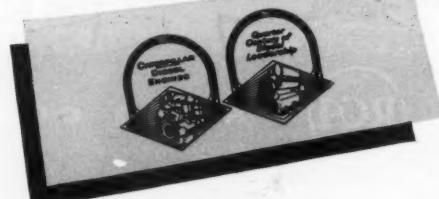
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67-foot "North Easter" insulated with Styrofoam

Experience shows Styrofoam* makes outstanding insulation

H. F. Sahlman, Sr., president of Sahlman Seafood Company operating 13 shrimp trawlers out of Fernandina Beach, Florida, speaks from 30 years in the fishing industry.

He says, "Our company has been using Styrofoam for several years, and we find it entirely satisfactory. Styrofoam is installed after a boat is built. On our boats," he says, "Styrofoam is applied directly to floors, ceilings and bulk-

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Cutting ice consumption by 30% is just one of the benefits of Styrofoam (a Dow plastic foam). Resistance to water absorption, rot and vermin, light weight and lifetime service without maintenance are other advantages.

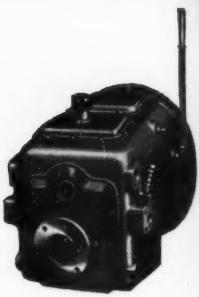
For money-saving data, write THE DOW CHEMICAL COMPANY, Midland, Michigan—Plastics Sales Department PL1724K-1.

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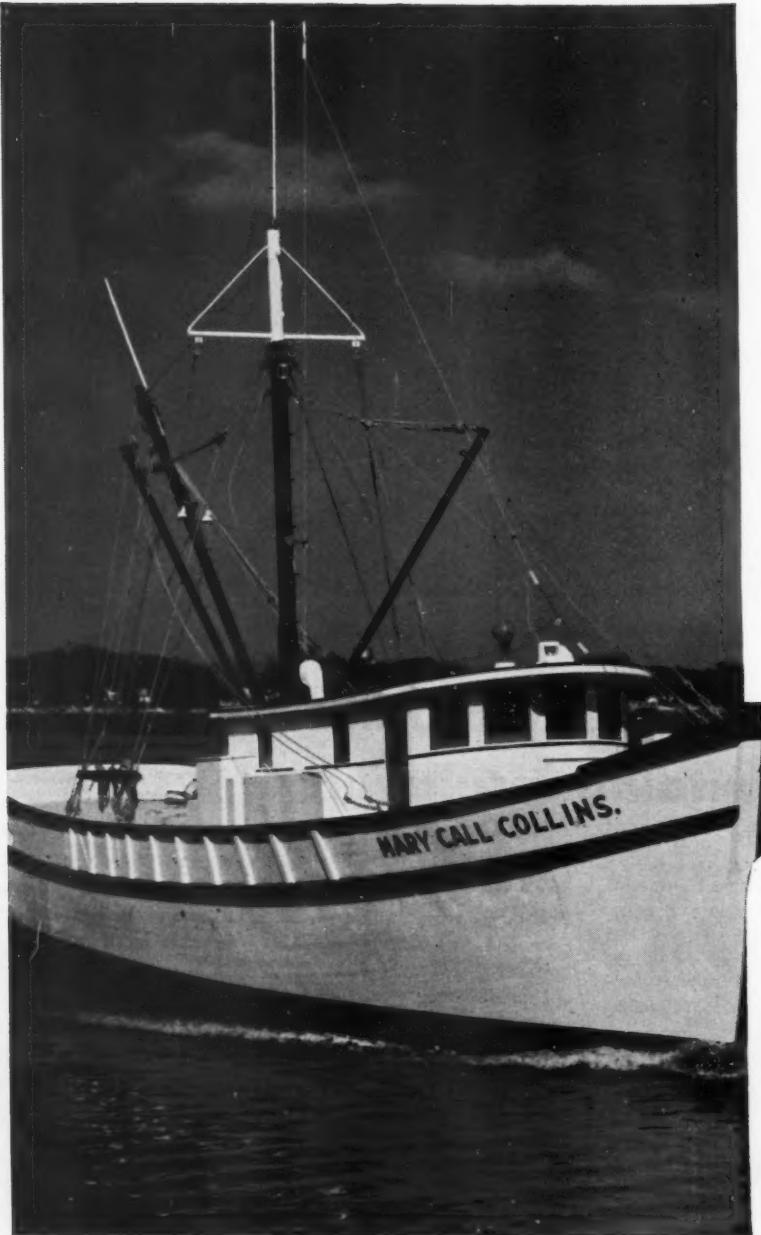
Twin Disc Model
MG-165 Marine
Reverse and
Reduction Gear



"We specified

Twin Disc Marine Gears on 30 Shrimpers"

— Virgil Versaggi, Versaggi Shrimp Company



Operating a Gulf fleet of 40 shrimp trawlers is no easy job . . . and marine equipment just has to be good if the operation is to pay off. That's why Versaggi Shrimp Company, of Tampa and Brownsville, has equipped 30 of its 40 shrimpers with Twin Disc Marine Gears—and today standardizes on Twin Disc.

The most recent addition to this big fleet is the 67-foot *Mary Call Collins*, named after the wife of Florida's Governor LeRoy Collins. This vessel swings a 50" x 34" 4-bladed propeller powered by a Caterpillar D342 Engine (150 hp at 1225 rpm).

Of this vessel's 2.96:1 Twin Disc Reverse and Reduction Gear, Virgil Versaggi says, "We use Twin Disc Marine Gears because of their performance and dependability. They're built for rugged work and the dealer service is good."

Twin Disc Marine Gears are designed to meet the widest range of engine-powered vessels, from 40 to 340 hp . . . built for heavy-duty service, with oversize bearings throughout . . . and are quick and easy to service.

TWIN DISC CLUTCH COMPANY
RACINE, WISCONSIN

The *Mary Call Collins*, latest trawler for Versaggi Shrimp Company. This vessel features a Twin Disc Marine Gear. It is the 600th trawler built by Diesel Engine Sales, Inc., St. Augustine, Florida.

TWIN DISC
Marine Gears

Metal-Lined Fish Holds Save Ice

Produce better quality catches because pen surfaces can be more easily cleaned*

A FEW years ago, when metal was first used in fish holds, the initial cost compared to that of wood seemed to be sufficiently high to discourage general use. Later experience, which has shown that it is virtually impossible to keep the larger portion of a wooden fish pen in a hygienic state, combined with the high maintenance and replacement costs of removable wood boards—if these are to be looked after properly—has thrown an entirely different light on the picture.

For all vertical and all difficult-to-ice pen surfaces, metals have been found to be suited particularly. Fish-hold washing methods used by the trade appear to be adequate to keep such metal surfaces relatively free of contamination. There is little danger that off odors will result from stowage of fish in contact with metal surfaces thus cleaned during stowage periods of up to 7 to 10 days. In contrast, worn wood boards cannot be washed effectively by present methods and fish against the latter may be unmarketable after 4 days or less in stowage. When it is necessary to use some wood boards in fish bins, this use should be confined to horizontally laid pen bottoms and shelf boards, since these are liable to be well iced before fish are placed over them.

Metal Holds Should Be Insulated and Refrigerated

Because of the danger of spoilage in fish resulting from neglecting to ice the metal pens properly, one would not recommend metal pens for the fish hold of an offshore trawler unless that hold were well insulated and refrigerated. With good design, careful operation of refrigeration equipment, and with intelligent use of ice to chill the fish, the boat owner may pay little or no more annually for fish hold insulation and refrigeration than he would for the ice which would be consumed (see Table 1) if these facilities were not employed.

Table 1 shows the calculated ice consumption in short tons (2000 lbs.) aboard a trawler of medium size, fishing off Canada's East Coast over a 6-day period in Summer weather. Approximate fish hold dimensions are 25 by 31 by 12 ft. depth under hatches.

The total ice requirements shown in Table 1, Item 5, point out three practical savings of ice in caring for a full load of fish in an insulated metal-surfaced, wholly refrigerated fish hold (Type IV) as compared with an uninsulated, wood-lined, non-refrigerated fish room (Type I): (a) 8.5 tons as a result of using insulation; (b) 7.1 tons + 1.3 tons = 8.4 tons as a result of using refrigeration; and (c) 14 tons because of metal surfaces. These represent a total saving of 30.9 tons or almost 50% of the ice required for a Type I hold.

For the fish hold of a medium sized trawler, outfitted in wood with surfaces that have lost their paint, about 18 tons of ice would be needed to shield properly a full catch from wing boards, shelf boards, and division boards. This large amount is necessary in order to insure that the ice is stowed where it is most needed and in the manner suggested. Most of the tonnage is an actual waste from standpoint of supplying refrigeration.

On the other hand, metals are easily cleaned, and as long as they are kept cool and are lightly iced, are very satisfactory for assisting in preserving fish. The small quantity of ice required against refrigerated metal walls calls for no special technique on the part of the icer, and can be provided from that allotted to the individual fish stowed near these walls.

Table 2, based on present knowledge of first costs and maintenance of both wood and metal pen boards, shows

that extruded aluminum alloy boards are as cheap as wood boards, provided yearly losses of the former due to dropping overboard, etc. are no higher than 4.1%. It is expected that losses would be much smaller than this. The costs assigned to the wood boards were based on a contractor's estimate for new construction and a boat owner's estimate for replacement. While it is difficult to assess the saving resulting from greater ease of washing metal boards, this should be substantial. Were wood boards and fish hold linings to be completely renewed after each 7 years' service, a practice reputed to be common in Germany, the cost picture from the standpoint of metal boards would be more attractive still.

Selection of Metal Hold Linings

Experience has shown that hard aluminum alloy sheet, if backed by hardwood, resists most puncturing if the gauge used on all surfaces other than actual pen bottoms and lower back walls is 1/16 in. or over. Where hardwood backing is employed, the gauge for pen bottoms and lower back walls should be about 1/8 in. If aluminum alloys are not backed with wood, 1/2 or 3/4 in. hard aluminum should be used for bottoms and back walls, while for pen sides or "wings" the aluminum should be about 3/16 in. Roughly half these thicknesses are required if Monel metal is employed.

Monel metal, nickel clad steel, and aluminum alloys have had limited use in other countries as linings for fish holds. Canadian experience is confined to aluminum alloys.

In the wooden Nova Scotian trawlers *Cape Scatari* and *Cape Fourchu*, where the aluminum was properly installed, and where welded joints were used to prevent slime and gurry from reaching the underside of the plate whence it cannot be removed, the aluminum has stood up for several years without visible sign of corrosion. These vessels have fully jacketed fish holds designed by the Fisheries Research Board of Canada.

The structural components and the sheathing of the lined fish holds of both trawlers are all-metal. Alcan aluminum alloys, resistant to the corrosive action of sea water, were used throughout. All joints and seams in the aluminum requiring watertightness were argon tungsten arc welded, and are the first known to be so fabricated

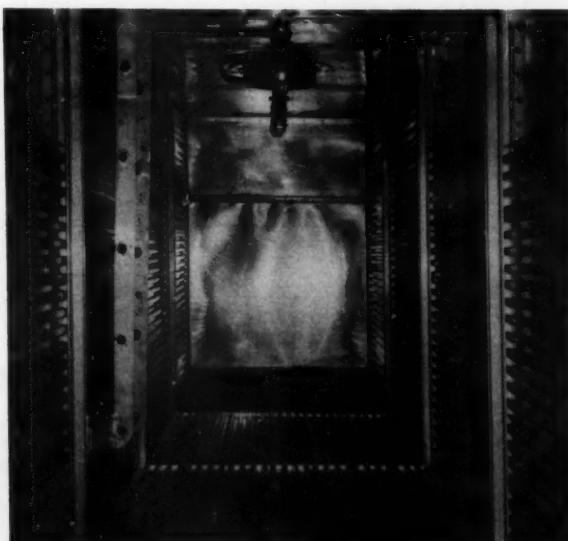


Figure 3—Top portion of the aluminum fish hold in the Nova Scotia trawler "Cape Fourchu", owned by National Sea Products Ltd. (Photograph courtesy Aluminum Company of Canada Ltd.).

* This article is based on Fisheries Research Board of Canada Bulletin No. 103, by W. A. MacCallum of the Technological Station at Halifax, N. S.

TABLE 1—CALCULATED ICE CONSUMPTION IN TONS ABOARD A CANADIAN TRAWLER OF MEDIUM SIZE.

Item No.	Utilization of ice	Fish hold Type I Non-insulated craft with poorly preserved wood linings and boards in fish hold	Fish hold Type II Insulated craft with poorly preserved wood linings and boards in fish hold	Fish hold Type III Insulated craft with metal surfaces in fish hold	Fish hold Type IV Insulated and wholly refrigerated metal-surfaced fish hold
1	Ice to chill catch of 200,000 lbs. edible groundfish and to keep apart the fish in center of pens	25.0	25.0	25.0	25.0
2	Ice used to keep the fish away from all pen surfaces.....	21.8	21.8	7.8	7.8
3	Ice to cool fish hold and fittings prior to start of fishing	1.3	1.3	1.4
4	Ice to satisfy the heat flow load	15.6	7.1	7.1
5	Totals	63.7	55.2	41.3	32.8
6	Approximate ratio of parts ice to parts fish, by weight.....	1:1½	1:2	1:2½	1:3

aboard fishing trawlers. Before installation, the underside and all lapped surfaces and all unseen surfaces of aluminum alloy structural and sheet components were etched and coated with paint selected to resist corrosion of the metal on the underside, should leaks occur and fish gurry decompose.

All metal surfaces, even to the contours of the extruded stanchions and the special extrusions for floor and pen partition supports are refrigerated from below with cold air which completely envelops the fish hold—sides, bottom, deckhead and end bulkheads. Sufficient quantities of air are circulated through a finned coil type evaporator and through each circuit of the jacket to reduce all the metal walls of the fish room to the desired temperature and no lower, independent of change in the heat load as a whole or from point to point in the fish room. There is not a significant carry-over refrigeration effect once the air in circulation through the jacket reaches the minimum desired temperature, because the low side of the system has little heat capacity. There is no danger of drying the fish since walls and fish are at the same temperature.

The *Cape Fourchu* and the *Scatari* are the first Canadian Atlantic coast trawlers known to be equipped with an alternating current auxiliary power supply. The power plant and refrigerator equipment for the installations are located in the respective engine rooms. Each consists of an 18-hp., 2-cylinder, 4-cycle Diesel engine driving at 1200 rpm. an electric generator having the specifications: 15-kva., 12-kw., 120/208-volt, 60-cycle, 3-phase, 4-wire a-c.

The Freon-12 motor compressor unit has a rating of 36,000 B.t.u. per hour operating at 17.7 lbs. per sq. in. suction pressure or a saturated refrigerant temperature of 15°F. for an inlet cooling water temperature of 60°F. and a flow of 261 U.S. gals. per hr., resulting in a high-

side pressure of 90 lbs. per sq. in. The compressors are operated by 5-hp. electric motors.

Comparisons of quality of landings from the *Cape Fourchu* aluminum hold (shown in Figure 3), with landings from other trawlers in the same fleet having non-refrigerated wood constructed fish holds, were made in the Spring and again in the Summer of 1954. During both investigations, landings from the *Cape Fourchu* were found to be almost entirely bilge-free, even for fish 10 days old. Landings from the wood-lined boats were definitely inferior in this respect.

Aluminum Corrodes Unless Kept Clean

Although aluminum holds have many advantages, it also has been found that there are a number of pitfalls and dangers in the use of aluminum. Galvanic action resulting from contact with many other metals, such as copper or iron, corrodes the plate rapidly. Even though the dissimilar metals are insulated from one another, they may be bridged with dirt and galvanic action may occur. Therefore, frequent washing at the site of such joints is recommended. Portland cement concretes should not be poured against aluminum alloys because of the corrosive action of lime. In such cases a hardwood pad and a suitable mastic insulator should be used between the metal and the concrete.

While exposed surfaces of aluminum alloys need not be painted, they must be kept clean because the metal pits under dirt. These surfaces may corrode severely under fish gurry lodged for extended periods. Unless there is absolute assurance that fish gurry will not lodge on hidden surfaces of aluminum alloy sections and plates which cannot be reached for washing, these surfaces should be painted at time of installation.

(Continued on page 30)

TABLE 2—ESTIMATED TOTAL ANNUAL COST OF PEN BOARDS (BASED ON 1,000 BOARDS).

Capital costs	Wood (spruce) 1000 painted boards at \$1.35 = \$1350	Extruded aluminum alloys 1000 boards at \$3.75 = \$3750
Uniform annual end-of-year payment necessary to repay investment in 15 yrs. at 5%	\$130.00	\$361.00
Yearly cost of replacing boards due to loss overboard, or other reasons ^(a)	115 painted boards at \$1.00	16 boards at \$3.75
Yearly cost of handling, and drying boards	1000 boards at \$0.12	120.00
Yearly cost of painting boards (one coat)	1000 boards at \$0.15	150.00
Total annual costs	515.00	421.00

^(a) It is quite possible that more aluminum boards might be lost than the estimated quantity of 16 per 1000 boards. For the costs to balance, a total of 41 aluminum boards could be lost each year.

New Tuna Clipper

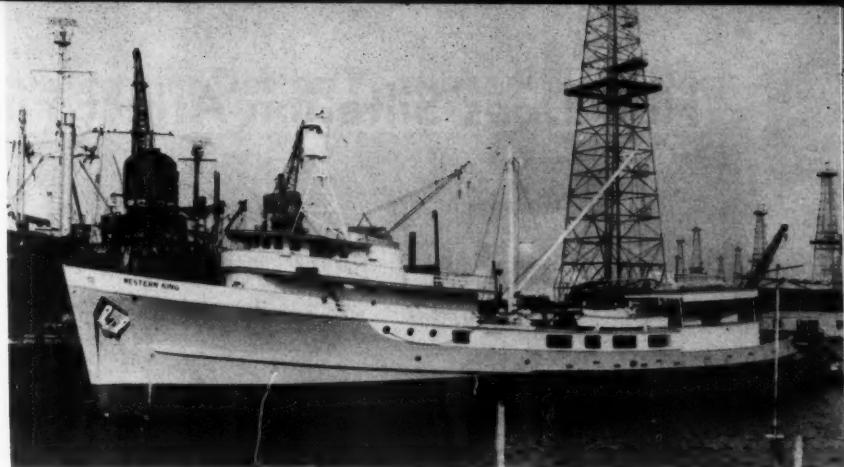
"Western King" Is World's Largest

THE Western King, believed to be the world's largest tuna clipper, had the finishing touches put on her in San Pedro, Calif., recently preparatory to beginning her active career. The 167-foot vessel, built on the hull of a Navy tugboat, received a paint job at the Craig Shipyard and also had mufflers added to the engines and electrical work completed. Registry of the ship will remain in Tacoma, Wash., where the owners and builders, Western Boat Building Co., are located.

Capt. Earl Peterson of Long Beach, Calif., formerly skipper of the Western Ace and the San Diego tuna vessel Calestar, will command the Western King when she leaves port about April 1. The ship has a capacity of 610 tons of tuna, and will sail from San Pedro to Ponce, Puerto Rico. She will help form the nucleus of a 12-vessel fleet operated by the Van Camp Seafood Co., Inc., that eventually will fish off both the east and west coasts of South America.

Idea for the huge new bait boat, which will have a cruising range of over 70 days, was credited to Hervey Petrich of Western Boat. Petrich foresaw at the end of World War II that larger tuna boats with an ability to stay at sea longer would be needed. He also predicted that a semi-foreign operation would become profitable, with American-owned boats bringing their catches to canneries located in foreign nations.

As a result, after the War the Western Boat Building Co., purchased an ATR, hull of a Navy tug, and rebuilt it into the Western Ace, a tuna clipper that fished last year for Van Camp and is now undergoing repairs in Tacoma. A second ATR hull was purchased last year and from it the Western King, larger than the Western Ace, was built. A third hull of a Navy tug is now being converted into a huge purse seiner at the Tacoma yard, and will be named the Western Jack. The Western Ace, Western Jack, and another vessel of similar size eventually will join fleet supplying Puerto Rican canneries.



New 167' tuna clipper "Western King" owned by Western Boat Building Co., Tacoma, Wash., who converted her from a Navy tug. She is powered by an 1800 hp. Fairbanks-Morse Opposed-Piston engine.

Has Steel Decks

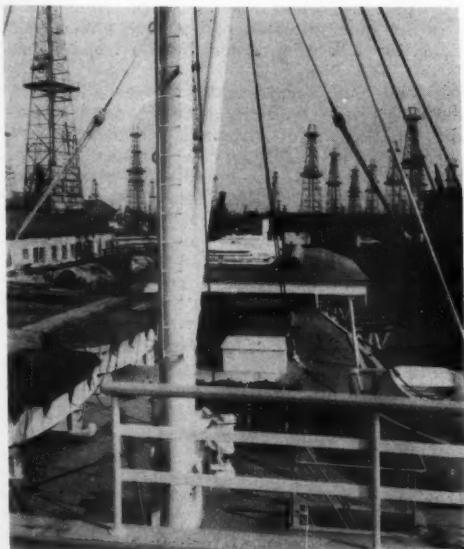
The Navy tug was stripped to its heavy wooden hull in the process of being converted into the tuna clipper Western King. Steel decks were installed, and the finished ship weighs 732 tons gross, has a beam of 33'5" and draws about 15' when loaded. Nearest tuna clipper in size to the Western King is the Western Ace, which is rated at 630 tons gross.

Sixteen all-steel brine wells, each with a 33-ton frozen tuna capacity, were installed below decks on the Western King. Eight of the wells are combination bait and tuna wells, and the other eight are combination tuna and fuel wells. Hatches of the wells open on the lower deck.

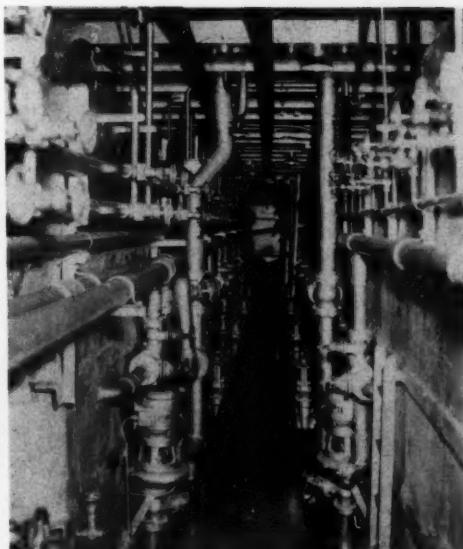
Three additional bait boxes of steel construction were installed on the upper deck near the fantail to provide quick access when needed. Three hatch entrances are located on the rear deck and there is a shade cover for the men. Lashed on the deck are two 18-foot Fairliner tuna tenders built by Western Boat, one large bait boat, and one small net skiff.

Three York 7½ by 7½ ammonia ice machines with six miles of coil in the tanks can freeze the average tank capacity within 12 hours, starting from sea temperature. A total of 19 Fairbanks-Morse pumps circulate the brine in the fish tanks, and three 12-inch Fairbanks-Morse pumps move the brine in the bait tanks.

(Continued on page 46)



Left: wide fantail on tuna clipper "Western King". Three hatches lead to combination bait-fish wells, and cover provides shade and protection for deck workers. Below fantail deck is main fishing deck with hatches leading to main fish wells.



Right: catwalk between 16 all-steel brine wells beneath after deck. The catwalk extends 75 ft. from engine hatch to rear. Controls visible regulate flow of brine in tanks. Below catwalk is main shaft of single screw ship.

How Does Siltation Affect Fish Production?

By Gordon Gunter*

THE shore animals of the Gulf of Mexico have lived in a highly silted environment for a long time, and a great many of them have special adaptations to such an environment. Siltation is a natural geological process which may be locally speeded up, upset or disturbed by the works of man. He probably will not change the overall system or geological process very much, but he does locally cause trouble for himself. When more knowledge of siltation and the diversified matters relating to it are at hand, we should be able to obviate these local difficulties.

It is my impression that biologists and conservationists are prone to assume that silting is all bad, terrible and destructive. This arises from the fact that we are naturally impressed by the bad side of a situation, especially if it is of catastrophic nature, and if we are ignorant of the beneficial aspects of the case.

Dr. Armstrong Price pointed out that what to the geologist is "incidental scour and fill" may be quite adverse events for populations of marine animals. In Trinity Bay there are oyster reefs now under several feet of mud, which were producing reefs 30 years ago.

In 1932 the Colorado River was induced by dynamiting to get rid of its "raft" and spew the accumulated debris out into Matagorda Bay. In a short while it crossed the bay and cut a channel through the barrier island into the Gulf. The Tiger Island, Dog Island and Mad Island reefs, which then yielded one-fourth of the oyster production of the State of Texas, were destroyed, as they were covered by mud.

In Matagorda Bay near Palacios there was a reef called Deep Reef where oysters were dredged 20 years ago. About ten years ago it was suddenly covered by two or three feet of mud when the Intracoastal Waterway was cut into Oyster Lake.

* Director of the Gulf Coast Research Laboratory, Ocean Springs, Miss. Material for the above article was excerpted from a paper presented by Mr. Gunter at last month's meeting of Gulf States Marine Fisheries Commission in Austin, Texas.

Not long ago an oil company in Louisiana cut a canal into a bayou. This diverted the water down the canal and the current in the bayou was so slack below the connection that it practically filled up within six months time, and an oysterman operating there had his beds destroyed.

Man Upsets Equilibrium

Most instances such as these are caused by the interference of man. They can be guarded against and to some extent avoided, if all of the operative agencies would get together. Where equilibrium is upset in one place it balances out somewhere else. Thus I do not believe that cutting a system of canals within a bay system or a marsh greatly changes the total picture of the area. This also holds for the cutting of passes into the bays along the Texas coast.

In Louisiana it is stated that these canals led to the influx of salt water. In East Galveston Bay it is said that the pass at Rollover allows more salt water in the Galveston Bay. It allows more water to enter locally into East Bay, but not into Galveston Bay as a whole. The reason is that the amount of water entering a bay is determined by the head of the tide and nothing else, if the passes are large enough to permit equilibrium before the tide changes.

The Texas coast is sinking and so is the Louisiana coast; and except for localized areas right around the mouths of the Mississippi and the Atchafalaya Rivers the Louisiana marsh is dissolving away like sugar. Actually, the head of the tide is increasing with respect to the altitude of the land, and thus salt water is inevitably creeping farther in.

Recent geological papers have maintained that the Mississippi River delta is practically stable and that siltation is more or less maintaining the delta as it sinks and is eroded away. That, however, is not the case with most of the marsh land which was cut off from the river by levees. Formerly, Spring overflows from the river brought in silt, which maintained the levels of the bays, the marsh and the islands, and now from the lack of it they are eroding away. Thus the lack of silt and the reduced fresh water drainage into these areas causes the encroachment of salt water, which has been so damaging to the oyster reefs.

By the same token Mississippi Sound is a saltier body of water than it used to be. Therefore, when man stopped siltation in the bays by leveeing the river he certainly caused some damage. Siltation in the Louisiana bays, as it formerly existed, maintained an equilibrium which now has been upset and we can see some of the harmful effects. In this instance, siltation had a good effect upon production and the lack of it seems to have had a bad effect.

Other things have happened. The water hyacinth and alligator weed now block the marshes to the north of salt water, except for the major channels which are kept open. But these major channels run between natural levees and thus do not drain the marshes on either side. This creates an effective block between the fresh water marsh and the salt water marsh, and it is only when a head is built up in the fresh water marsh that it breaks through, somewhat equivalent to bursting a dam; then there are great freshets of water bursting over the oyster beds at once.

Operations of Mudshell Dredges Not Harmful

The bottoms of our bays are composed of silt and any strong wind stirs them up. If every dredge on the Gulf Coast were to be concentrated in one place, I doubt that they would muddy the water as much as one period of strong windy weather.

Very few critical studies of this matter have been made, but those carried on by Robert M. Ingle in Mobile Bay show that considerable amounts of phosphates, nitrates and organic matter are contained in the mud and



The "Anna M.", 80' shrimper owned by Carl Muchowich & Sons, Freeport, Texas. She is powered with a General Motors 6-110 Diesel, and has Dow Styrofoam insulation. Her skipper is Capt. William Thompson.

65' Steel Trawler Design Features Raised Deck

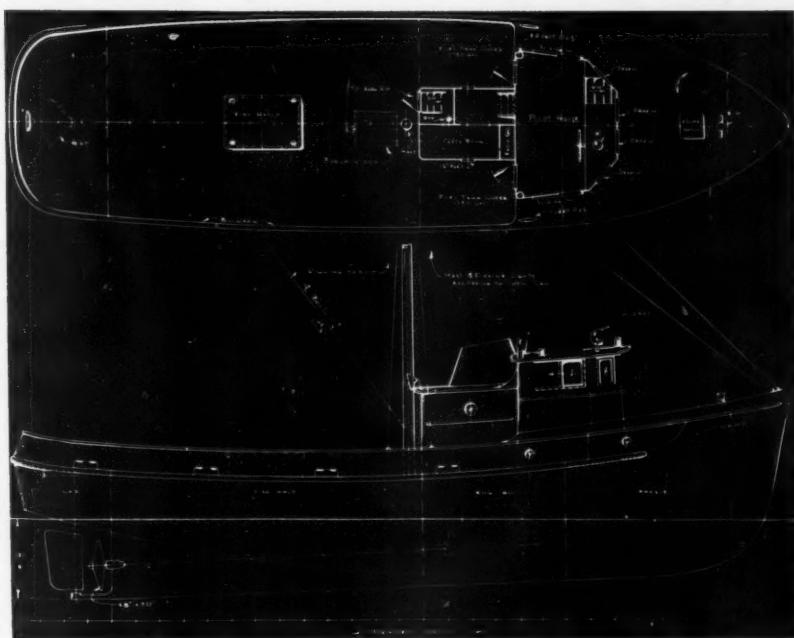
THE accompanying plan is of a steel trawler proposed by Gladding-Hearn Shipbuilding Corp., Somerset, Mass., for tropical operation. The boat is to be vee bottom of all welded steel, with a hull model similar to West Coast combination fishing boats. She will have an overall length of 65', beam of 18' and 8' depth of hull.

The design features a raised deck forward which provides plenty of freeboard and makes possible a larger fo'c'sle. The pilothouse is on the raised deck to give good visibility both forward and aft. Captain's quarters directly abaft the pilothouse will contain radio and electronic gear. The galley is in the fo'c'sle, and there are berths for four men. Adequate ventilation for the engine room is assured by two 6" cowl vents incorporated into the structure of the pilothouse and arranged so that they can be turned to the most advantageous direction.

Scantling specifications call for 24" frame spacing with $\frac{1}{4}$ " shell and deck plating and 3/16" bulkhead plating. The rudder is to be of $\frac{1}{2}$ " steel plate with a 4" diameter stock fitted with stuffing gland in the lazarette, permitting the quadrant to be below decks. Mast and booms are fabricated of steel plate.

A 250 hp. main engine will turn a 48" x 30" three-bladed bronze propeller through a 3.75:1 reduction gear. A 3 1/2" diameter Monel tailshaft with rubber stern bearing will be used. The main engine is to be fitted with a front-end power take-off for driving the winch and wash-down pump. An air-cooled Diesel auxiliary unit will provide power for charging batteries, and will be fitted with a belt-driven bilge pump.

Fuel tanks are built integral with the hull outboard of the engine room and provide a total capacity of 3500 gallons.



Outboard profile and deck arrangement plans of 65' steel trawler designed by Gladding-Hearn Shipbuilding Corp. for tropical operation.

The interior of the pilothouse and all quarters will be sprayed with cork impregnated bitumastic, insulated with Fiberglas wool batts and sheathed with plywood. The fish hold is to be sprayed with bitumastic insulated with Styrofoam plastic foam and sheathed with stainless steel bonded with rubber gaskets.

The fish hold is unusually large for a boat of this size, with a capacity of 100,000 lbs. The fish hold floor is to be of concrete, with center drainage to sump, covered with perforated galvanized steel portable plates. The pens will be separated by wooden dividers fitted into galvanized steel stanchions, arranged so that pen boards can fit into any bay.

are pumped out with it. Harmful sedimentation and turbidity are confined to a very small area within the vicinity of the dredge. The other lighter materials are scattered widely in amounts which cause no damage and which on the other hand, are probably beneficial. Thus, I am not much impressed by the objections to sedimentation caused by the mudshell dredges.

A large part of the sediment is composed of particulate material much finer than silt. Some of it is colloidal clay which only settles to the bottom when the water is extremely still. Some of it is a flocculant hydroxide of iron and alumina.

People who have observed the operations of shell dredges soon notice that shrimp, fish and birds collect in the area near the dredges. This is doubtless due to the fact that the dredges stir up and spew out the worms and various other organisms living in the mud. The screen piles from such operations generally waste away in a short while and are redistributed over the bay bottom. In addition, the holes cut in these operations soon fill up. The screen piles themselves sometimes become oyster reefs.

Mudshell dredges might actually do some good in that they stir up the bottom and bring up the nutrient salts such as phosphates which are buried in the sediments when they are deposited. In fact, such operations have

roughly the same effect as plowing of the land. It is a well-known fact that the phosphate from the land comes down to the sea and a large part of it is irretrievably buried in the sediments. Part of it goes on out into the deep sea, where it remains below the photic zone or light zone where it can be used by plants, and it is only brought to the surface of the sea by upwellings. Where upwellings take place there always is a very rich fauna.

More Research on Siltation Needed

We know very little about sedimentation or siltation and related matters. I should like to see a chemical study made of every river emptying into the Gulf of Mexico and, furthermore, a study made of the ground waters which possibly flow into the bays. I should also like to see a study made of the mud and silt deposits of this coast with regard to organic and inorganic phosphorus, nitrates, nitrites and organic components, with a study made of how these are dissolved, adsorbed, or connected with larger particles of sediment, smaller particles, and the flocculant materials in the water. How are they deposited and how much is stirred up by the winds? What do shell dredges do in comparison? How much do trawl boats stir up when they drag the bottom of the Gulf? Today we are very ignorant of such matters, and they are all involved with the question of siltation.

Maine Birds Eye Fleet

Back in Operation

National Sea Products Ltd. of Halifax, N. S., the new owners of the Birds Eye fish processing plant and trawler fleet at Rockland, took over the property March 1. Two American corporations have been established to operate the business. 40-Fathom Fisheries, Inc. will operate the fillet plant, while the corporation operating the trawler fleet and the shipyard will be known as 40-Fathom Trawlers, Inc.

The fishing trawler *Squall*, skippered by Capt. Ronald Whiffen, left Rockland March 22 for a possible Grand Banks destination, and her catch will put the processing plant back into operation. The *Surf*, Capt. Douglas Watts, was to leave a few days later. Three of the nine-ship trawler fleet will be transferred to Halifax, but this will not change normal operations, since Birds Eye usually had only six vessels in operation at any one time.

Capt. Henry Gallant, president of the Maine Fishermen's Association, reports that contract negotiations between the plant workers and trawler crewmen and the new owners are expected to be completed shortly. The Association voted, at a recent meeting, in favor of the 60-40 share profit plan.

A gradual expansion of operations at Rockland may be expected, as the new 40-Fathom firms get underway and establish American markets. The new owners intend to diversify their operations and process other kinds of fish besides ocean perch, so that they can keep open almost year-round.

Operations of both 40-Fathom companies will be in charge of Arthur N. Thurston of Gloucester, Mass., who will act as resident manager. Thurston has been connected with the fishing industry in the North Atlantic area for many years.

James Bracco remains with 40-Fathom as marine superintendent in charge of the shipyard and fleet, a position he held with Birds Eye. Raymond (Tweed) Graham, Birds Eye's fillet plant manager, remains with the new firm in the same capacity. It is expected that the shipyard will be opened for general boat repairs and services, after having been closed to the public for several years.

New Sardine Laboratory Dedicated

Assistant Secretary of the Interior Ross L. Leffler spoke at the formal opening of the Maine sardine industry's new research and quality control laboratory in Bangor on April 11. Other speakers included Commissioner Fred Clough of the Dept. of Development of Industry and Commerce, as a representative of Gov. Muskie.

Prior to the dedication of the laboratory, about 150 sardine canners, Government, business and research leaders enjoyed a luncheon.

The new laboratory occupies a four-story building on Bangor's Exchange Street, and is being equipped to handle a number of the industry's 25-cents-a-case State tax financed development program projects, including grading, chemical, technological and biological research, new products and quality control.

Seeks Aid for Clam Industry

Senator Payne of Maine last month urged the Fish & Wildlife Service to expedite research in rebuilding clam production in Maine. The clam yield dropped from 5,611,000 lbs. in 1945 to 2,872,000 in 1955, in spite of Federal expenditures of \$100,000 and State funds in research.

The Fish & Wildlife Service is being asked to devote more attention to the production of shellfish along the North Atlantic shores.

Landings for Year Show Increase

Landings at Maine ports during the year 1956 amounted to 277.8 million pounds valued at nearly 17.0 million



The "White Swan II", new 42' party fishing boat built by Gronros Boat Shop in Rockland, Maine, for Capt. Al Johnson. She will operate out of Barnegat Light Yacht Basin, Barnegat Light, N. J.; is powered with 200 hp. Chrysler with 3:1 reduction, and has dual steering.

dollars. This was an increase of 22.4 million pounds, or 9 percent in volume, and \$882,000 or 5 percent in value.

Production of sea herring was 41.1 million pounds above the total 1955 catch. Although the lobster catch decreased 2.1 million pounds, the value increased almost \$404,000.

Clam Flats Closed to Non-Residents

Owl's Head last month voted at town meeting to close its clam flats to out-of-town people, and to require resident diggers to have a written permit from one of the Selectmen.

At the town meeting in North Haven, it was voted to close the clam flats of the town for a period of two years, including Pulpit Harbor and around to the western shore.

Drop Efforts to Ban Torching Herring

The proposal to ban any torch light herring fishing in certain coastal sections of the State was dropped last month by mutual consent of the Coastal Seiners and Weir-men's Assoc. and the Maine Lobstermen's Assoc. The two groups had met to discuss a bill which called for a ban on torch herring fishing in the coastal area of York County and sections of the Sheepscot River to conform with similar bans on the rest of the Maine coast.

Maryland Clams Packed Successfully

The Burnham & Morrill Co. plant at Vinalhaven reported recently that its experiment in packing Maryland clams has proven successful. They will continue the operation until late Spring, when the hake processing season opens.

Seed Quahog Transplanting Movie

A moving picture film, made by Maine's Department of Sea & Shore Fisheries, shows the transplanting of seed quahogs. The film is now available to interested organizations.

Titled "The Seed Quahog Dredge," the film is in full color and runs for about ten minutes. Much of the film deals with the development and operation of a hydraulic dredge, used by the Sea & Shore Fisheries Department for large-scale transplantings.

Great Lakes Fishermen Lose Nets in Ice Break-up

Hard luck struck commercial fishermen operating along the west shore of Green Bay, when high winds on March 15 broke open about a fourth of the ice on the bay. There were 52 commercial pound nets set in the area, and of these only six were in place the next day. The 46 nets lost were valued at \$1,500 to \$2,000 each.

Some of the fishermen were able to find and retrieve their nets. Most of the 40-foot square nets were anchored to the ice in a way that would drop them to the bottom if the ice moved.

Break-up of the Green Bay ice came during the Lenten season, one of the most profitable for the fishermen. Ice movements had not been expected for another two weeks, as the ice averaged about 25 inches in thickness in the mid-bay section.

Wisconsin Rough Fish Catch

The Wisconsin Conservation Department reports that a total of 7,685,000 pounds of rough fish were taken from Wisconsin inland waters during 1956. Carp and sheepshead accounted for 7,443,000 pounds, and there were 129,000 pounds of buffalo.

State crews removed about half of the rough fish and the rest were taken by contract fishermen. Sales were chiefly to big-city markets and to mink ranchers.

Ohio Fishing Season Opens

The 1957 commercial fishing season has opened in Ohio, and the first gill nets have been set in Lake Erie. A dozen commercial fish companies using trap nets will begin the fishing season during the early part of April.

Discuss Mississippi River Regulations

Members of the Wisconsin Conservation Commission have discussed commercial fishing on the Mississippi River with members of the Iowa Conservation Commission, with the view of achieving greater uniformity in boundary water regulations. The two commissions have asked the Upper Mississippi River Conservation Committee to help in working toward a better basis for improved coordination among States bordering on the river.

Making Good Smelt Catches

Lake Superior commercial fishermen have been forced to fish through unusually thick ice this year to fill fish commitments. The lake has been frozen and ice-locked from Whitefish Point to the Canadian shore, a condition that occurs only once in every seven years, according to the Michigan Conservation Department.

Lake Superior fish production has been fair. The lake trout are running about 2½ lbs. average, while the herring are mostly regulars.

Green Bay area netters, who have been taking good commercial quantities of lake smelt from Bays de Noc, were anticipating the annual smelt production peak in April.

Lake Michigan commercial fishermen have been making fairly good hauls of smelt and herring, while yields of chub and perch have been fair. Some yellow pike were taken in a few areas, while around the Chicago and Waukegan, Ill. regions, catches of smelt were on the increase into April. Smelt and perch takes along the eastern shore of Lake Michigan were fair to good, with more smelt being taken than lake perch.

Commercial fishing on Lake Huron was generally rather light, with fishing pressure greatest on Saginaw Bay, where catches of smelt were fairly good. Takes of chub and perch were fair, and some fair commercial quantities of whitefish were produced in the northern areas of the lake.



Chubs are caught by Percy Heward's 36' fishing tug "Fayth H" of Rogers City, Mich. She is equipped with 24 hp. Kahlenberg engine, 28 x 26 five-blade Michigan propeller, Crossley net lifter and Nylon nets.

On Lake Erie the new Spring season opened March 15, and sheepshead, carp, etc. have been in good production. Smelt hauls have been mediocre.

Jumbo Perch Show Lamprey Scars

Jumbo perch caught in Munuscong Bay recently and checked by Conservation Officer Joseph Hill of Sault Ste. Marie, Mich., were found to have lamprey scars.

Commercial Fishermen Discuss License Hike

Walter B. Olsen, Escanaba, Mich., was elected president of the Michigan Fish Producers Association at the annual convention held recently in Traverse City, Mich. The retiring president is Ora Endress, Grand Marais commercial fisherman.

Other officers named include: Harold Lentz, Standish, first vice-president; Lloyd Mulhagen, St. Joseph, second vice-president; Roy A. Jensen, Escanaba, who was re-elected secretary and treasurer.

At its business meeting, the Association took notice of the fact that (1) the State is in need of additional revenue; and (2) a higher commercial fishing license fee would tend to discourage boatmen from obtaining a license so they could sell their catches.

The commercial fishermen also indicated they will cooperate with a recommendation of the U. S. Fish & Wildlife Service to reduce the legal length for netted perch in certain areas from 8½ to 8 inches. Areas to be designated are those in which there is an overabundance of perch—Saginaw Bay and Southern Green Bay, where stunted crops of perch need thinning.

Barcelona Harbor to Be Dredged

Barcelona, once a bustling port on Lake Erie, soon may become the heart of the fishing industry in Western New York again. U. S. Army Corps of Engineers have recently been taking soundings preliminary to a \$1,129,000 harbor re-development project which is scheduled to begin this year.

Near Barcelona are some of the best fishing grounds in the New York waters of Lake Erie. Annually hundreds of tons of fish have been taken into Barcelona, destined for major markets, such as Buffalo, New York, Chicago and Philadelphia.

For years, however, sand has been filling the harbor, and fewer and fewer fishing vessels could find berths. It is hoped that with the new project completed, Barcelona will once again become a thriving fishing center.

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Florida Governor and Mrs. LeRoy Collins holding scale replica of 600th trawler "Mary Call Collins" built by Diesel Engine Sales, Inc., St. Augustine. Left to right: L. C. Ringhaver, President and General Manager of the boatyard; Virgil Versaggi; Mrs. Collins; John Versaggi; Mrs. Salvatore Versaggi, mother of the five Versaggi brothers, who own the shrimper; Dominick Versaggi; Governor Collins; Manuel Versaggi; and Joe Versaggi.

600th Trawler Launched by Florida Builder

Versaggi's 67-foot shrimper "Mary Call Collins" marks milestone in 14-year record of Diesel Engine Sales, Inc.

ANOTHER milestone launching was added to the unparalleled record of Diesel Engine Sales, Inc. on February 9, when its 600th trawler, the *Mary Call Collins*, was launched from its main yard in St. Augustine, Florida. The 67' boat was named in honor of the wife of Florida's Governor, LeRoy Collins, and will be delivered to Versaggi Shrimp Co. Mrs. Collins christened the trawler as a crowd of more than 500 looked on.

The launching of the *Mary Call Collins* marked the continuance of a production pace set by Diesel Engine Sales that is unmatched in the shrimp industry. Under the leadership of L. C. Ringhaver, the firm's president and general manager, Diesel Engine Sales has built 600 boats in the 14 years following its founding in 1943, ac-

counting for approximately 75% of all shrimp boats constructed during that period. The last hundred vessels have been produced from the firm's assembly-line facilities in a period of 19 months. The yard presently is operating at an output of six trawlers per month.

The *Mary Call Collins* will operate with the portion of the Versaggi shrimp fleet working out of Brownsville, Texas. The boat brings the size of the Versaggi fleet to 40 vessels, and constitutes the 29th trawler built for the company by Diesel Engine Sales. The Versaggis also have contracted for Hulls 601 and 602 at the St. Augustine shipyard. The five Versaggi brothers, John, Virgil, Manuel, Joseph and Dominick, operate their boats out of Tampa, Florida; Patterson, Louisiana; and Brownsville,

New 67' shrimper "Mary Call Collins" on her trial run. Right: her builder, L. C. Ringhaver; and John Versaggi of Versaggi Shrimp Co., owner of the vessel.



Mrs. LeRoy Collins, wife of Florida's Governor, christening new 67' shrimp "Mary Call Collins". Below, the vessel's wheelhouse, galley and engine room, showing her D342 Caterpillar Diesel with 3:1 Twin Disc gear.

Preceding the launching of the 600th trawler, President L. C. Ringhaver of Diesel Engine Sales told the assembled crowd of his company's faith in the shrimp industry and of their continued efforts to back up the industry with more and better boats. He introduced John Versaggi, oldest of the shrimp brothers, who spoke of the pride he and his brothers had in owning the 600th trawler produced by Diesel Engine Sales. He also paid tribute to all who had contributed to the growth of the shrimp industry, and made especial mention of his father, Salvatore Versaggi, who rose from being a New York longshoreman in 1925 to operate a fleet of ten boats, which served as the basis of the large fleet now operated by his sons. John Versaggi then presented Governor and Mrs. Collins with a scale replica of the *Mary Call Collins*.

The number of dignitaries present at the launching of the *Mary Call Collins* pointed up the importance of the shrimp industry to the economy of Florida. On the launching platform, besides Governor and Mrs. Collins, were U. S. Representative S. A. Herlong; State Senator Verle A. Pope; State Representatives F. Charles Usina and Nathan Weinstein; Ernest Mitts, director of Florida's State Board of Conservation; James S. Melton and Mr. Ringhaver, owners of Diesel Engine Sales, Inc.; and the five Versaggi brothers.

After Mrs. Collins had broken the traditional bottle of champagne on the stem of the flag-decked shrimp trawler and it had slid into the waters of the San Sebastian River, the boat was drawn up to a near-by dock and members of the crowd were given rides around the harbor.

The launching was followed by a barbecue in the Diesel Engine Sales, Inc. building shed, at which Ringhaver served as host. The guests enjoyed barbecued shrimp, lamb, and beef, prepared under the direction of Dr. H. E. White, widely-known for his skill as a barbecue master.

Designed for Working Distant Shrimp Grounds

The *Mary Call Collins* is typical of the standard 67' trawlers built by Diesel Engine Sales. Designed by Tams, Inc., she has an 18½' beam and 6½' draft, and boasts the speed and seaworthiness necessary to work today's far-flung shrimp grounds. Her gross tonnage is 63, and fish hold capacity is 30 tons.

This vessel, as well as the entire Versaggi fishing fleet, is powered by Caterpillar. The *Mary Call Collins* has a Caterpillar D342 Marine Diesel, sold by Gibbs Corp. of Jacksonville, with a continuous horsepower rating of 210. This six-cylinder, four-cycle Diesel has a 5¾" bore and 8" stroke, and operates at 450 standard low idle rpm.

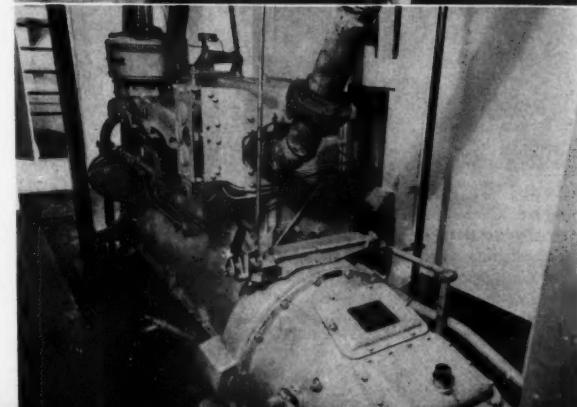
Power is delivered to a four-bladed 50 x 34 Columbian Bronze propeller through a Twin Disc 3:1 reverse and reduction gear and 3" Tobin Bronze propeller shaft, 18' long, with Goodrich Cutless rubber stern bearing. A Twin Disc front power take-off is used to operate such auxiliary equipment as the Stroudsburg Model 515½ T triple friction drum hoist. There is a 2 kw. Onan generator, as well as a 750-watt Onan auxiliary generating unit.

The engine room contains four fuel tanks, having a total capacity of 5000 gallons; one 55-gallon capacity lubricating oil tank; two fresh-water tanks, having a combined capacity of 650 gallons; and a Goulds power-driven bilge pump. There is a Marine Products auxiliary pump.

Hull Specifications

Specifications for the ship's hull, which was treated with Cuprinol, includes a 9 x 12 fir keel, oak bowstem, 10 x 10 pine Samson post, 2½ x 4¼ oak frames on 12" centers, and 2" pine decking. Deck beams are 4 x 4 pine, on 12" centers. Planking is 1½" select cypress and fir, with 1½ x 4" cypress ceiling. The crew quarters are floored with 2" pine.

(Continued on page 33)



Florida Court Asked to Void Minimum Shrimp Size Law

Leon County Circuit Court has been asked for an injunction prohibiting the State Department of Conservation from enforcing a regulation governing the size of shrimp caught by Florida fishermen. Tallahassee Atty. George Atkinson filed the injunction petition in behalf of Julian Lewis, Marathon shrimper.

The contested regulation, known as Resolution 22, prohibits the taking, attempting to take or possession of shrimp that exceed a count of 60 per pound. It has applied to offshore waters under Florida's jurisdiction along the coastline of Monroe, Collier, Lee, Charlotte, Sarasota, Manatee, Pinellas, Hillsborough and Dade Counties since Jan. 12.

Shrimpers claim that, because of the word "possession" in the regulation, those who fish in waters outside Florida's jurisdiction but sell their catch in Florida ports must make a choice between throwing half their catch away to meet size requirements, or violating the law.

Oyster Replanting Project Under Way

At Crystal River, an oyster replanting project is under way which is raising hopes of returning this Florida West Coast City to its one-time prominence as an oyster producer. The Board of Conservation has a crew gathering oysters from shallow beds in waters where the salt content is too high for favorable growth. They are being transplanted in deeper water where the salinity is better.

No gathering of oysters in the transplanting areas will be allowed until the Board of Conservation says the time is ripe. If the oysters now being transplanted survive the Summer, there will be more extensive plantings later.

Royal Red Shrimp Being Marketed

A new species of shrimp known as the Royal Red has gone on sale in Jacksonville. Charles Guthrie, Jr., marketing specialist for the U. S. Department of the Interior, stated appearance of the shrimp is the result of a year's research by the U. S. Fish and Wildlife Service.

The largest concentration of the Royal Red was found between Daytona Beach and St. Augustine, up to 100 miles offshore. Biggest catches made by the Fish & Wildlife Service were in 1,000 to 1,250 feet.

New Sponge Bed Discovered

Recent developments have changed the outlook for the Florida sponge industry to a marked extent, and have

generated notable optimism among those engaged in harvesting the Gulf of Mexico's sponge crop. Not only has the blight situation improved—in fact it is claimed there are now plenty of sponges to be had for the diving—but a new sponge bed has been discovered off the Shark River, a stream which empties into the Gulf a few miles south of Everglades.

Everglades is roughly 40 miles southeast of Naples, and has become the hub of a changed procedure in handling the sponges gathered on the new bed. Instead of returning to Tarpon Springs every time with a boatload of sponges, the cargo is transferred to motor trucks at Everglades and hauled north overland to the Tarpon Springs sponge center for processing and sale. The unloaded boats go back to their diving.

Current demand for natural sponges is reported to be excellent, with prices at new highs.

Changes in Game and Fish Commission Seen

The Legislature's Interim Committee on Fish and Game Resources will recommend to the 1957 session that the State Game and Fresh Water Fish Commission either be abolished or reorganized under a new setup. Rep. James N. Beck of Palatka, a committee member, told a meeting of the Putnam County Commission that two proposals concerning the game agency are included in the recommendations which will be submitted to the Legislature.

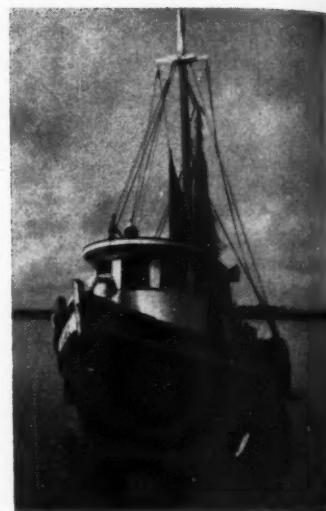
One, he stated, would abolish the Commission and create in its stead the elective office of Secretary of Natural Resources, with Cabinet rank. The other would replace the present five-member agency and director with a commission composed of three Cabinet members. Under the latter plan, game and fish regulations would be set up by the Legislature.

General Marine Boatyard Building Shrimpers

General Marine Boatyard, Inc., owned by partners John Pterudis and Donald Kiesel and located on San Carlos Island, Fort Myers Beach, is now building shrimp boats. A marine railway and repair service is also a part of their operation. They will continue to build shrimp doors.



FISHING FOR TRASH FISH out of Pascagoula, Miss., occupies the 75' dragger "Chebeague", formerly of Gloucester, Mass. She is owned by Anthony Frontiero, and is equipped with 171 hp. Buda Diesel, 3:1 Twin Disc reduction gear, 52 x 42 Hyde propeller, Exide batteries, Columbian rope, Danforth anchor, Raytheon "Fathometer" depth sounder, White compass, Apelco radiotelephone, Wickwire wire rope, Ederer nets and Hathaway winch. She uses Esso lubricating oil.



The 42' shrimp boat "Flor de Mary III" is skippered by Capt. Manuel Cross of Brunswick, Ga. She is equipped with 68 hp. General Motors Diesel with 30 x 24 five-bladed Columbian propeller, and uses RPM lubricating oil.

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Georgia Seafood Landings Double

Landings of fish and shellfish in Georgia during January amounted to 532,000 lbs.—over twice the quantity landed during the same month in 1956. Blue crabs, shrimp, oyster meats and finfish, consisting mostly of king whiting and shad, made up nearly the entire January catch.

The majority of the shrimp landed in the southern section of the State was taken in waters of the northern Florida coast, and varied in size from 16 to 55 headless shrimp to the pound.

Although bait trot lines and crab pots accounted for a greater proportion of the catch of blue crabs, many of the smaller vessels started using crab otter trawls.

North Carolina Starts Big Oyster Planting Program

The most extensive supervised program of oyster rehabilitation ever undertaken in North Carolina was started last month when the first of some 255,000 bushels of seed oysters were planted in West Bay in Carteret County. This program is part of the planning of the Department of Conservation and Development to rehabilitate and enlarge the oyster industry, which was dealt widespread blows by the hurricanes of 1954 and 1955.

Not only will the 255,000 bushels of seed oysters be planted, but in addition some 30,000 bushels of shells will be placed on specially selected bottoms known for their production of the flavorful Tar Heel oyster. Other counties besides Carteret to benefit from this program are Pamlico, Hyde, Dare, Brunswick, Pender, Onslow and New Hanover.

It is estimated that not less than 160,000 bushels of oysters were taken from the North Carolina-controlled waters during the recent oyster season. This means the State will not have to purchase any shells for replanting.

It was, according to oyster taxes already collected by the Commercial Fisheries Division, the best season oystermen have had in State waters in several years.

Asked to Return Blue Crab Tags

G. B. Talbot, director of the Fishery Laboratory on Pivers Island, has announced that the Fish & Wildlife Service has authorized a study of the blue crab in North and South Carolina. This work will be centered at the Pivers Island Laboratory.

Blue crabs will be tagged and released in various places in both States. A reward for return of these tags will be paid. The finder should give the place and date of capture when the tag is returned. These tags will give information on the migrations of the crab and also will show abundance and mortality rates.

Fish Production Figures for 1956

The 1956 North Carolina catch of fish and shellfish amounted to nearly 301 million pounds. Menhaden, used in the production of meal and oil, accounted for 84 percent of the total. Foodfish, consisting mostly of alewives, croaker, spot, mullet, gray sea trout, and king whiting, made up 11 percent. The remaining 5 percent was shellfish—mostly blue crabs and shrimp.

The 1956 menhaden catch of nearly 252 million pounds was landed mostly in December, November and June.



PLASTIC PIPE FOR BILGE LINES is a feature of the new 55' x 16'6" x 5'6" Hatteras Trawler "Captain Puck", constructed by the Morehead City (N.C.) Shipbuilding Corp. She is owned by V. J. "Puck" O'Neal of Morehead City, and is equipped with 6-71 General Motors Diesel, 750-watt Onan generator, four 8-volt Surrette batteries, Hathaway hoist, Wickwire wire rope, One-Mile-Ray searchlight, 76-CM Apelco radiotelephone, 5" White Constellation compass and Raytheon "Fathometer" depth sounder.

Fishing Boat Hits Submerged Object

One of Oregon Inlet's best known fishing boats, the *Chee Chee*, owned by Willie Etheridge, Jr. of Wanchese, went aground in Upper Core Sound last month after striking a submerged broken beacon piling which had been replaced by a buoy. A hole was crushed through the bow, but those aboard were able to steer her to a nearby shoal where she went aground in about four feet of water. A commercial fisherman from Sea Level rescued Etheridge and his companion and took them to Atlantic aboard his boat the *Mike and Jim*.

New York Landings for Year Show Increase in Poundage

Total landings of seafood during 1956 amounted to 152.4 million pounds valued at 8.6 million dollars to the fishermen. This was an increase of 15 percent in poundage, but a decrease of 3 percent in value compared with landings during 1955.

Landings of fish and shellfish, exclusive of menhaden taken by purse seines, in the Marine District of New York in December amounted to 3.4 million pounds valued at \$574,000 to the fishermen. This was an increase of 5 percent in volume but a decrease of 10 percent in value compared with landings in the same period of 1955. The increase in volume was due primarily to greater landings of cod, red hake, and hard clam meats; while lesser amounts of higher priced items, such as oysters and scallops, accounted for the decrease in value.

"Bass Boats" Built in Greenport

Many of the "bass boats" seen along the New England coast during the season originated from Ray's Boat Shop of Greenport, Long Island, New York. Raymond Ciacia of the shipyard calls them the "Tarpon" class.

Among the owners of these "bass boats" is Philip E. Schmitt of Port Washington, N. Y., who has the *Tunny*. His boat is 21 ft. long, with 7 ft. 6 in. beam, and 22" draft. She has high freeboard, V-bottom, and is powered by a 100 hp. Gray motor swinging a Federal Equipoise 13" x 11" propeller. The craft has Philippine mahogany planking over oak frames, and is fastened with Everdur screws.



Mate Arthur Holzer, left, and Captain-owner James Degruicco with Linen Thread Co. Gold Medal net aboard their dragger "Helen II" of Brooklyn, N. Y.



36' troller "Kia-Ora", which means "Good Luck" in Maori language. She is a dory type, with 11' beam and 4' draft, and is powered with a 45 hp. Buda Diesel. Her owner is Sidney Peterson of North Bend, Ore.

Oregon Hatcheries Release Large Numbers of Salmon

Better than 3,000,000 yearling spring chinook and silver salmon fingerlings were released from Oregon Fish Commission hatcheries in streams throughout the State in the first two months of the year. Irvine French, Fish Commission Director of Hatcheries, said another million spring chinook and silvers were scheduled for release during March. The current "wholesale" liberations are being made to make room in rearing ponds for millions of fish hatching from eggs that were collected at the hatcheries last Fall and early this Winter.

French said release of 400,000 yearling silver salmon from the Bonneville hatchery into the upper John Day River will be held up until roads to liberation sites in that area are passable. Another 290,000 spring chinook, silver, and blueback salmon are being retained at the Marion Forks and Oakridge hatcheries for experimental use this Spring in fish passage studies at Big Cliff Dam on the North Santiam River and Lookout Point Dam on the Middle Willamette River.

New Salmon Diet Being Developed

Second phase testing of an experimental production diet for hatchery salmon was initiated recently at the Oregon Fish Commission's Sandy Hatchery, with the release of 32,000 "marked" silver salmon fingerlings into the Sandy River.

Thomas B. McKee, project leader of the Fish Commission's hatchery biology section, said this phase of the testing is being conducted to determine if the experimental diet has any delayed influence on the survival of hatchery fish after they are liberated. The fish released recently won't be expected back to the Sandy River as adults until late 1958. Jacks will be due back this Fall.

Results of the feeding trial comparing the experimental production diet with the standard Sandy Hatchery diet indicate the new diet could cut fish food costs considerably at Oregon Fish Commission hatcheries. But it will have to undergo larger scale testing before it can be put into use at all Fish Commission hatcheries.

Release Steelhead Fingerlings

Close to 80,000 fin-marked steelhead fingerlings were released into the Sandy River the latter part of March from the Oregon Fish Commission's Sandy Hatchery. Irvine French, Commission Director of Fish Culture, said this is the third consecutive year that steelhead liberations of this magnitude have been made in the Sandy.

The young "steelies" were marked with an adipose-right ventral fin clip to determine how many of them show up in the sport and commercial fisheries of the Columbia system as adults.

Adult steelhead have not yet put in an appearance at the North and South Santiam hatcheries, according to French. At the North Santiam hatchery, where natural spawning areas are cut off by Detroit Dam, about 3,000,000 steelhead eggs are taken annually by the Fish Commission. French expects steelhead egg-takes at all Fish Commission hatcheries to exceed 6,000,000 eggs this year.

Goodrich Retires from New England Fish Co.

Henry H. Goodrich, Vice-President and Eastern Seaboard Representative of the New England Fish Co., retired on March 31, after 35 years of service. He will open a food brokerage office in Phoenix, Arizona, to be known as the Henry H. Goodrich Brokerage Co.

Columbia River Steelhead Report Available

"Columbia River Steelhead" is the title of an 18-page report just compiled by the Research Division of the Fish Commission of Oregon, 307 State Office Building, Portland. The report points out that there is still much to be learned about Columbia River steelhead runs, but on the basis of the best available information, both Summer and Winter steelhead runs appear to be in sound condition.

Floyd L. Wright

Floyd Lewis Wright, vice-president and treasurer of the Columbia River Packers Association, Inc., died in Astoria on March 13. Mr. Wright long had been engaged in the fisheries. He was president of the Astoria Port Commission, elected to this position in 1952 and re-elected in 1956 for an additional four-year term. He was also a member of the Advisory Board of the Pacific Marine Fisheries Commission.

Extensive Albacore Tuna Survey to Be Made

Fishing bids were received until April 15 for 10 qualified vessels which will be used in an albacore tuna trolling survey next Summer in waters off Oregon, Washington, and California. This will be the most extensive tuna "hunt" ever scheduled.

Two Federal research vessels, as well as the 10 fishing vessels, will participate in the tuna search under the direction of the Pacific Oceanic Fishery Investigations (POFI) of the U. S. Fish and Wildlife Service, with headquarters in Honolulu, Hawaii. Dr. Albert Tester is the POFI director.

The fishing vessels will explore an area, at 40-mile intervals, between 35°N and 47°40'N which is from Destruction Island, Washington, to Point Arguello, California. The vessels will troll along parallel east-west tracks extending about 350 miles offshore. The survey will start July 22, and the vessels will be allowed from 10 to 22 days to complete it. The fishermen may fish promising areas at their own discretion. The catch will belong to the fishermen, except for 200 albacore which the Government will retain for tagging or other scientific purposes. A scientist will go on each commercial vessel.

The area to be studied was selected because it contains an albacore fishery which fluctuates greatly from year to year. Past surveys by Government vessels indicate that during the Summer and Fall months there is a band of albacore tuna extending in a north-northwest direction from the Summer fishery off the coast of Southern California to about 450 miles west of Astoria, Oregon. It is believed that only when climatic and oceanographic conditions are such that its eastern limit approaches the coast is it fished by fishermen of the northern part of the Pacific coast.

The two research vessels of the Pacific Oceanic Fishery Investigations will patrol the area, collecting scientific data on food abundance, temperature, water transparency, and currents to determine the conditions which govern the occurrence and movement of the albacore.

California to Have New Salmon Hatchery

A fish hatchery to cost approximately \$1,350,000 will be included in the Trinity River division of the Central Valley Project in California, to assure conservation of existing fish runs, the Interior Department has announced. One of the principal features of the Trinity River work, Lewiston Dam, now under construction, will block migration of fish at the dam site. King and silver salmon and steelhead trout pass upstream beyond the dam site in their spawning runs.

Increased fishing and loss of spawning beds through greater use of streams for power, flood control and irrigation programs were cited as the reasons for the sharp decline in salmon spawning in California last year. A report made by Director Seth Gordon of the Fish & Game Commission said the salmon spawners in the Central Valley streams dropped to less than 200,000 last year, only half the total needed to maintain the fishery.

New Boat Owners

In the San Francisco area, the following have been listed as being new boat owners: John A. McKeon, the 49-ft. *Bluefin*; Rosario Morello, the 32-ft. *Rosemary*; Larry Klein, the 36-ft. *La Cresta*; Fred E. Mathews and Jim M. Stillman of Long Beach, the 48-ft. *Sea Doxy*; Gustave A. Johnson, the 34-ft. *Golden City*; and David Chan, the 36-ft. *South Point*.

Other localities reporting new owners are: from Monterey, Harvey Bellach, the 33-ft. *Roger Dodger*; Salvatore and Anna Mirabella, the 31-ft. *Free Lancer*; and Harvey and Mary I. Bellach, the 36-ft. *Jolly Roger*.

Thomas E. and Irene Burke of Hood have the 29-ft. *Simona Ann*; Donald R. Brown, Petaluma, the 30-ft. *Gracie W.*; John Wolleb of Brisbane, the 39-ft. *Maureen Ann*; Joe S. Berry and Walter E. Eastwood of Pacific Grove, the 29-ft. *Lynn*; Charles F. Hanna of Mill Valley, the 35-ft. *Rock-a-by*; Dolores McDaniel of Marshall, the 33-ft. *Jet*; Holly Coxon of Watsonville, the 31-ft. *Pandora*; Raymond K. Stone of Lodi, the 37-ft. *Janie W.*; Al T. Jackson and William W. Swanson of Oakland, the 37-ft. *Elvekema*; Thurman L. Smith, Brisbane, the 33-ft. *Miss Lucky*; Walter W. Holck of Stockton, the 29-ft. *Noyo Belle*; C. I. Williams of Sebastopol, the 35-ft. *Ellen E.*; Manuel C. and Rose V. Valine of Isleton, the 38-ft. *Elana*; Edward B. Robinson of Richmond, the 43-ft. *Susan Jean*.

Other new owners include Italo A. Canepa of Santa Cruz, the 35-ft. *Sara-Dave*; Ralph D. Haskin of Aromas, the 36-ft. *Lizz-Art*; Gabriel Defuentes of Fair Oaks, the 35-ft. *Enez Andrea*; Max M. Andrews of Fairfield, the 33-ft. *Kay-Bil*; William C. Chuba of Morro Bay, the 44-ft. *Privateer*; Victor L. Sands of Castro Valley, the 40-ft. *Frances K.*; Donald K. Jorgensen of Yuba City, the 41-ft. *The Undine*; Edward E. McElroy of San Rafael and Henry L. Knight of Martinez, the 42-ft. *Escapade*; and J. H. Caughan of Sobrante and M. D. Anderson of Alameda, the 36-ft. *Katherine*.

The following fishing boats have recently changed owners: *Miss Princeton*, bought by John Teixeira of Redwood City; *Wild Dago*, bought by Walter Light, Walnut Grove; *Beth M.*, by R. J. Vanoni, Seaside; *Isabelle*, John T. and Josephine Rezendes, Fort Bragg; *Maria No. 2*, by Ray K. Carpenter, Bodega Bay; *Westy*, by Robert Serbin, Sausalito; *Ann*, by John W. Lane, Mill Valley; *Mary Ann*, by Dominic Passanisi, Monterey; *Northern Light*, by Ida Aaker, Fort Bragg; and the *Wasp*, by the Admiral Towing Co., San Francisco.

Troller "Pelican" Being Improved

Further improvements on the 50-ft. steel troller *Pelican* are being made by owner-builder Walter Aldridge and his captain, Ed Weidenaar. A Kolstrand hydraulic power system and anchor winch for operation of the salmon



Walter Aldridge stands on bridge of 50' steel troller "Pelican" which he and his son built for themselves, as Capt. Ed Weidenaar brings her into Moss Landing Harbor, Calif. The boat is powered with a General Motors 6-71 Diesel and has Wood Freeman automatic pilot.

gurdies is being installed. The boat is equipped with an electric generator operated by the main Diesel engine for spot welding jobs at sea. Last year the boat was refrigerated and tallied up a good season on salmon and albacore.

Vessels Leave for Salmon Fishing

Thirty Oregon and Washington jig boats and draggers which spent the Winter in San Diego left the harbor the first week of March to fish for salmon in northern waters. All are expected to return for the albacore season.

Northern canneries are reported to be offering 45 cents a pound for salmon delivered dockside.

Attempts are being made by California fishermen to push legislation for opening of the salmon season to April 15 in conformity with the States of Washington and Oregon. So far they have been unsuccessful, and the opening date is set for May 1.

Several Moss Landing Boats Change Hands

After a good season on his 35-ft. troller *Anita Jean*, now in Moss Landing, Capt. Jim Brandenburg has stepped into the big fleet with purchase of the 50-ft. *Aquarius* from Paul Renard of San Diego. Last year, this hard working fisherman brought in 50½ tons of albacore for a gross of \$17,000.

Other boat sales at Moss Landing include Joe Andrade's *Sea Bird*, sold to Alva Davis of Salinas, and the *Inez D.*, owned by George Van Syckel and purchased by Joseph and Irene Cooke of Carmichael.

Francis Furber, who lost his troller *Patricia* off the rocks at Point Reyes last year, has bought the *Marie H.* from Trygve Hamlot. Hamlot will fish for salmon and albacore this year on the *Western Skies*, recently purchased from Bill Anderson of Edmonds, Wash. Ole Beck is the new owner of Leonard Shirrell's *Sea Star*, and Shirrell's new boat is David Danbom's *Dorothy Belle*.

Appointed Chrysler Dealer

Chrysler Marine and Industrial Engine Division recently announced that Adolph Boicelli, doing business as Boicelli & Boss Machine Works, 2902 Jones St., San Francisco, has been appointed Chrysler Marine engine dealer for the entire county of San Francisco.

Enlarging Moss Landing Shipyard

Work on the Moss Landing shipyard is progressing rapidly with the advent of fine Spring weather. The yard was originally designed by builder Wilbur Sandholdt to handle boats only up to 60 ft. in length, but now will provide haul-out accommodations for big boats also. The Moss Landing shipyard will be the only yard capable of handling such vessels between San Francisco and San Pedro.



48' fishing boat "Allotar" and her skipper, Capt. Otto Kola of Ilwaco, Wash., who owns her with John Kola. She was built in 1929, and is powered with a 44 hp. Diesel.

Washington Research Boat Trying Mid-Water Trawl

The Fish & Wildlife Service's exploratory vessel *John N. Cobb* has left Seattle for a seven-week period of experimental mid-water trawling in the North Pacific to see if such trawling can be developed off the Washington and Oregon coasts to harvest Pacific ocean perch, cod, ling cod and other species which spend part of their time off the bottom. So far these fish have gone unharvested in this area because of a lack of suitable gear.

If a successful mid-water trawling method can be developed it will open up vast new areas for commercial fishing, especially over rough and rocky bottom where the bottom trawlers cannot now operate.

Fishermen Getting Ready for Salmon Season

Three Tacoma area fishing boats soon will start getting ready for the Summer salmon season, after spending the Winter dragging for scrap fish. Frank Marinkovich, owner of the *Gladiator*, largest of the three, said his vessel was due in port late last month with a cargo of dogfish from the Steamboat Island area near Olympia. The *Gladiator's* skipper is Nick Stanovich.

Other vessels preparing for the salmon season are the *Emily Jane*, owned by Bud Bezich, and the *Oregonian*, owned by Martin Scrivani of Gig Harbor.

Since mid-February, Marinkovich has made seven trips to the Steamboat Island area, averaging better than 20 tons of dogfish each trip. The fish livers are extracted and shipped to British Columbia.

On one trip in March, the *Gladiator's* nets took 40,000 pounds of dogfish in one 15-minute drag.

Seattle Landings Show Value Increase

The Fish & Wildlife Service has reported that more than \$3 1/2 million dollars worth of fish and fisheries products were received in Seattle in 1956, compared with a 1955 figure of \$2 million. The figures include landings of fresh fish and imports from Alaska, British Columbia, California, Japan and other points. Lack of a pink salmon cycle on Puget Sound and reduced imports from British Columbia cut the receipts lower than was expected.

Salmon Net Fishing Bill Signed

The bill to prohibit salmon net fishing off the Washington coast at such time as Canada, Oregon and California pass similar bills, has been signed into law by Governor Albert D. Rosellini.

Copalis Beach Opened to Clam Digging

The State Department of Fisheries announced recently that commercial razor clam digging would open on Copalis Beach April 1 and proceed until a quota of 375,000 pounds has been reached. The commercial season on Willapa Harbor spits will continue until the Copalis limit is reached.

Favor License Fee for Sport Salmon Fishermen

Commercial fishermen recently expressed their approval of a bill which would require sports fishermen to buy salt water licenses to catch salmon. They feel that such income would help the State Fisheries Department plan its salmon conservation and rehabilitation program. The proposed permit would cost \$1.

Wiegardt New Head of Oyster Growers

Lee J. Wiegardt of Ocean Park has been elected president of the Pacific Coast Oyster Growers' Assoc., to fill out the term of B. L. Taylor of Shelton, who has resigned.

Water Sampler Aids in Pollution Study

A new, automatic water-sampling apparatus, built by the University of Washington's Oceanography Department, will be used to help detect pollution in Puget Sound. Installed in Hammersley Inlet, near Shelton, the apparatus takes a water sample every hour for a week before it must be reset.

Such frequent testing is highly important, Washington State Fisheries Department officials feel, in areas where winds, tides, currents and temperature may affect the composition of the water. Periodic sampling away from Hammersley Inlet also will be continued.

Sampling will provide a basis for major laboratory experiments by the Shellfish Division of the Fisheries Department on the biological effects various low concentrations of sulfites have on Pacific and Olympia oysters. Sharing in the program and the costs is the Washington Pollution Control Commission, headed by E. F. Eldridge.

Marked, Unfed Salmon Fry Released

Fourteen Northwest women have just completed "marking" (removing two fins) of a half-million tiny, fall chinook salmon at the Spring Creek Hatchery at Underwood, Washington. They worked four weeks at the U. S. Fish and Wildlife Service hatchery.

Half of the "marked" fish (a quarter of a million) were released into a stream at the hatchery site as newly-emerged, unfed fry. The other quarter million fish (a control group) are being fed until they reach fingerling size and will be released this May.

"The purpose of 'marking' these small salmon is to identify them so when they return as adults we can tell whether there are greater returns from unfed fry or fingerling fish," says fisheries management biologist Harlan Johnson of the Little White Salmon Hatchery at Cook.

Fish technicians will be watching for the return of these "marked" salmon to the Spring Creek Hatchery in the Fall of 1960.

Seattle Otter Trawl Landings

Otter trawlers landed 37 trips at Seattle during March, unloading 1,109,500 lbs. of fish. This was slightly less than in February, and represented a drop of half a million pounds from March, 1956. True cod, with 370,600 pounds, accounted for a third of the catch. However, in March of last year the landings of true cod were 100,000 pounds more than this year.

Capt. Paulson
tells why
all five boats
in this North
Atlantic Fleet are
equipped with . . .



Surrette

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The Portland, Maine fleet of five steel trawlers, for which Captain Paulson is port captain and agent, is equipped with Surrette G-T-N-S 110-volt batteries. John E. Willard, Jr., of Willard-Daggett Co. is principal owner of the vessels, and all of the trawlers are making good trips, refishing on Grand Banks and Gulf of St. Lawrence.

Capt. Paulson says: "Surrettes are very good batteries and give excellent service. I like them because they have greater capacity and have longer life than others we have used. There is little delay in delivery even on large 110-volt sets. Our boats are out for two weeks at a time which means they must have the most dependable battery power. For North Atlantic Fishing, ordinary batteries are not good enough."

"The boats have all the latest electronic equipment aboard, plus several motor driven pumps and air compressors, with the result that the batteries get extremely hard use. What we want most of all is good service, and that's what we get with Surrette."

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all show a marked preference for SURRETTE Marine Batteries.

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MARINE BATTERIES
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Metal-Lined Holds Save Ice

(Continued from page 16)

Probably the most widely used metal to date in fish holds is galvanized iron. It is used in the form of built-up stanchions, channels to retain wing boards where the latter intersect the side wall of the hold, and as supporting angles or rests for shelf boards, which may be movable. When poorly maintained, galvanized iron can so rust that edges of stanchions become ragged and a menace to the hold worker. Regular painting of worn galvanized iron surfaces is recommended for this reason.

The actual design into which the selected materials are incorporated is important too, since subsequent wear, puncturing, breaking of joints, or formation of gurky pockets, all of which may lead to corrosion, may undo the good work done at the time of fabrication.

Monel metal, stainless steels, and nickel clad steels are readily welded. Monel metal has been soldered in fish hold application and nickel clad steels have been welded. Successful practices for welding aluminum alloys are now widely employed, one of these being the use of the argon tungsten arc. This is suited to both shop and ship work.

Many different extruded sections are available in various aluminum alloys. Some stainless steel and Monel metal structural components are also available.

Metal Pens of Unit Construction

Metal fish pens of unit construction, a type which employs shop fabricated pen sections, can be installed in the fish room of a new trawler or in that of craft now fishing, and installation can be completed within the weeks allotted each year for outfitting. The unit pen design is to be distinguished from the conventional pen which is constructed in and forms an integral part of the fish hold. The unit pen is supported clear of the ship's bottom and "ceiling", which provides an opportunity of wholly refrigerating it.

Each pen is fabricated as a unit of several sections, which gives the installed units freedom to "work" with the vessel, without reducing the effectiveness of watertight seams provided in each unit. Each section of each pen can be removed from the fish room without disturbance or damage to other pens or damage to itself. This feature should be of value should ship repairs or inspection require removal of the ship's ceiling. Considerable uniformity in size and shape of sections can be achieved, making possible minimal fabrication costs in shops ashore. The difficulty which is experienced in fitting heavy gauge metal to the ship's contour is overcome by this method of fabrication in the shop ashore.

In 1954 a unit pen was designed, fabricated and installed in pen space No. 6 Port in the fish room of the trawler *Cape Argos*, fishing out of Halifax, and is now being tested under commercial fishing conditions.

The complete pen consists of a bottom section with a curved bottom and back which in general conforms to the

curve of the bilge, a middle section, and an upper section. The sections are bolted together through horizontally disposed flanges shown in Fig. 4 which also serve as shelf board "rests" or battens. Intermediate battens are provided by aluminum angles bolted to the sides of the respective sections. The overall dimensions of the assembled pen are 3 ft. 4 in. by 10 ft. 5 in. by 11 ft. 2 in. The sections are built of 3/16-inch and 1/4-inch aluminum sheet and plate.

Aluminum Angles Provide Strength

Aluminum angles, welded to the pen side wall, bottom and back sheets, are used to give the sections structural strength and watertightness. The aluminum angles, used to retain outboard division boards, are riveted to the side plates. In its location in the fish room, the pen is wedged between neighboring inboard and outboard ship's stanchions in a single pen space, and is held off the fish room floor and side wall by means of wood runners to encourage natural circulation of refrigerated air behind the pen. The pen is prevented from moving into the "run" by the use of a holding device which is riveted to the two inboard stanchions, and this device also retains the inboard division boards.

The technique commonly practiced on trawlers, that is stowing of fish and ice from a built-up shelf in the "run", is used with the unit pen, and the fish are shelved off and separated by division boards in the customary manner.

The metal unit pen type of fish room may be as little as \$50 per year more expensive to own and operate than the conventional wooden hold. The costs of insulation and mechanical refrigeration of the two holds are about the same.

Experience with the use of aluminum alloys suggests that the unit pen may have a service life beyond the 15 years estimated for capital recovery. It is difficult to assess the effect of greater ease of washing and the reduction in labor at sea resulting from less ice being handled, both of which are characteristic of unit pen construction. Nevertheless, these features should be reflected in increased satisfaction displayed by the crew and greater willingness to do a better job. The metal pens are insurance against bilgy fish and they may be artificially refrigerated where such refrigeration is needed most.

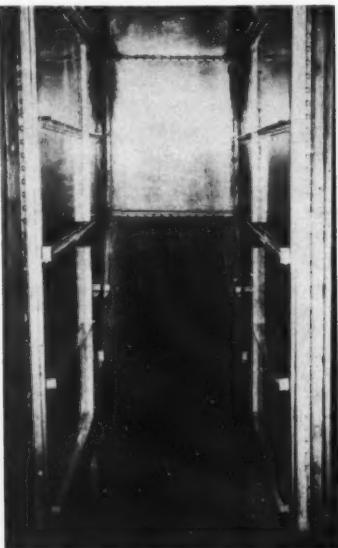


Figure 4—Aluminum fish pen of unit construction in the fish room of the Nova Scotia trawler "Cape Argos".

New Canadian Regulations Set Minimum Size for Net Mesh

New Canadian regulations designed to conserve stocks of cod and haddock in the Northwest Atlantic went into effect on March 13. The new regulations governing mesh sizes in nets were recommended by the International Commission for the Northwest Atlantic Fisheries. They affect Sub-Area 3, which takes in the Newfoundland fishing banks and waters adjacent to that province, and Sub-Area 4, which covers Nova Scotian waters, the Gulf of St. Lawrence and the Bay of Fundy.

Different minimum mesh sizes are specified for Sub-Areas 3 and 4 because scientific information has shown that the stocks of fish in each Sub-Area are distinct and separate, and that there is a slower growth rate in Sub-Area 3. The mesh size in Sub-Area 4 is to be a minimum of 4 1/2", similar to that already in effect in Sub-Area 5, but in Sub-Area 3 a 4" mesh size will be permitted. The nets affected are those used by all types and sizes of trawlers and draggers fishing for cod and haddock.

Experiments have shown that the larger mesh sizes release as much as half the haddock now wasted at sea, with negligible loss of fish of marketable size. Wastage of small cod at sea is less serious than that of haddock, but as much as 25 percent by number have been discarded in some years in the Gulf area.

A NEW ADDITION to the "SAFETY" 15-20 DC GENERATOR LINE

The "SAFETY-LISTER"

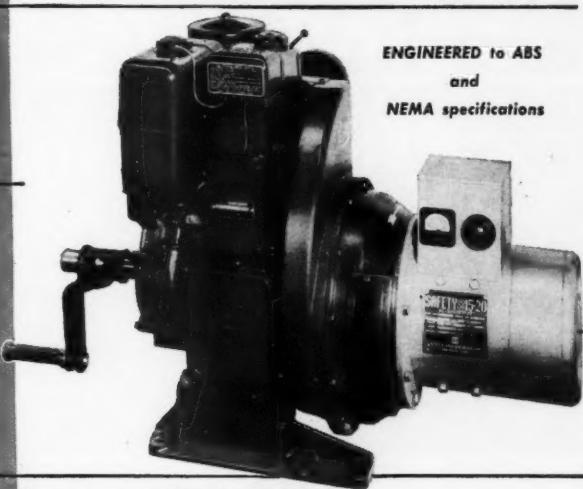
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The "SAFETY-LISTER"

unit, available in other voltages, can be used for farm emergency lighting and for other industrial purposes. Additional information is available upon request.



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Massachusetts Lobstermen Favor Uniform Measure

Commissioner of Natural Resources Francis W. Sargent recently reported that Massachusetts lobster fishermen seem to favor a maximum legal length of six inches for all lobsters sold in the State, plus the establishment of a uniform nation-wide minimum lobster measure.

A poll was conducted by Frederick C. Wilbour, Jr., Director of Marine Fisheries, and it was revealed that 848 lobster fishermen favor a uniform lobster measure for the entire industry and only 17 oppose such legislation. The poll further revealed that 520 lobster fishermen favor the establishment of a six inch maximum legal length on lobsters, while 299 voted against it.

February Production Good

Landings at Boston Fish Pier in February totaled 12.0 million pounds, which is very good for this time of year. But landings in February 1956 totaled 13.6 million pounds, which was outstanding. Prices were lower in February 1957. The over-all average ex-vessel price was 7.3 cents per pound, while a year ago the average was 7.88 cents per pound.

Shellfish Officers Discuss Predators

Election of Thomas T. Kelley of Dennis as president, and the problems of predators and atomic radiation in the ocean, highlighted the recent annual meeting of the Massachusetts Shellfish Officers Association in Boston. Mr. Kelley replaces Arthur W. Corey of Falmouth.

Harry J. Turner, marine biologist of the Woods Hole Oceanographic Institution, said that there are two sources of atomic radiation in the ocean, that resulting from the explosion of a military nuclear weapon, and that coming from the disposal of radio-active materials resulting from waste products of peace-time atomic industries. He advised that this is a critical problem at the present time.

Mr. Munsey told of proposed plans for a Massachusetts shellfish commission which would act as a central body for collecting all types of biological and statistical information. He said that its principal problem would involve the collection of valid statistics of the shellfish take in Massachusetts.

Homer S. Haberland of the U. S. Fish and Wildlife Service proposed a co-operative plan between the Massachusetts Division of Marine Fisheries and the U. S. Fish and Wildlife Service whereby self-addressed cards would be distributed to all holders of shellfish bed certificates. These cards would enable shellfishermen to send in monthly statements as to their catch.



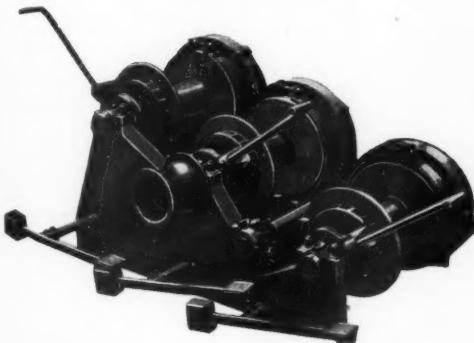
102' wooden dragger "Four" at Sample's Shipyard in Boothbay Harbor, Maine, where she received extensive renovations, including a completely new fish hold, lined with galvanized steel sheets, a new steel engine trunk, and marine plywood deckhouse. The dragger is owned by Lloyd Morey & Associates of Boston, and fishes for groundfish under command of Capt. John Cahill. She is equipped with 400 hp. Atlas Diesel and RCA Radiomarine radar.

Entire Versaggi Fleet of 40 Trawlers

including the New "Mary Call Collins"

Equipped with

STROUDSBURG HOISTS



Stroudsburg Hoists are made in single, double and triple drum models. Friction drums have ratchet, pawl and brakes with interwoven linings. They are engaged by internal thrust cams with friction plates. Pinion shaft extension available for mounting engine drive in either rotation.



The "Mary Call Collins" like all other trawlers in the Versaggi Shrimp Co. fleet, is fitted with a Stroudsburg Hoist. She has a Model 515½T triple drum unit.

The new trawler is the 600th built by Diesel Engine Sales, Inc. of St. Augustine, Fla.—practically all of which are Stroudsburg-equipped.

STROUDSBURG ENGINE WORKS

Box 207, Stroudsburg, Penn.

"The Fishermen's Choice is a Stroudsburg Hoist"

600th Trawler Launched

(Continued from page 23)

The vessel's insulation is Styrofoam, with Reynolds Vapor Barrier. The boat was finished with Hart & Burns Navicote bottom paint, Henderson & Johnson nonskid white deck paint and International hull and deckhouse paint.

The pilothouse of the *Mary Call Collins* is 20'6" long and 8' wide, containing ample space for the wheelhouse, galley, and captain's quarters. It is built of cypress, with pine studdings, having a white duck canvas roof. The wheelhouse is 5'4" long and contains a Bendix depth recorder, a Metal Marine automatic pilot, and 7" Ritchie compass. Also located in the wheelhouse is the 42" Marty mahogany steering wheel, chromeplated pilot's chair, and controls for the One-Mile-Ray searchlight, mounted on top of the deck house.

The cypress-paneled galley is located aft of the wheelhouse, and contains a Real Host four-burner stove, a Monel sink and hand pump, and a mess table seating four. Mounted on the bulkhead of the galley is a marine radio and telephone.

The captain's quarters, located aft of the galley, contain two bunks equipped with innerspring mattresses, and ample built-in cabinet, closet, and drawer space.

Steel Mast and Boom

The trawler has a 10" reinforced steel pipe mast, with 6" steel pipe boom. Rigging includes two outrigger booms, 4" in diameter, and 16' in length; a 2½" davit; ¾" Bethlehem rigging cable; and two 8" and two 10" Madesco snatch blocks.

She is fitted with 3 life preservers, 3 fire extinguishers, fog horn and fog bell, Perko running, boom and mast lights, Link-Belt chains and sprockets, 50R Northill anchor, and 600' of 1¼" Columbian anchor rope. There are two Suburban 200-pound LP gas tanks.

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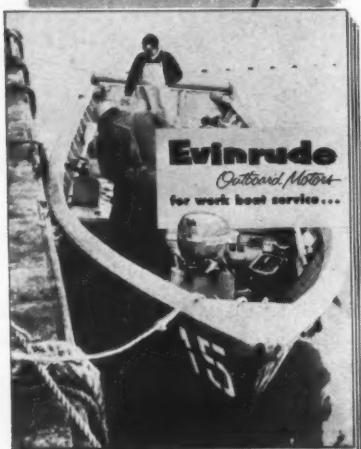
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Virginia Dredgers Have Been Getting High Prices for Crabs

The price of crabmeat for 1957 has been very high, going to \$14 for a barrel of 100 pounds. On March 20, crabs brought \$12. The high price is the result of the scarcity of crabs. Last year, because there were so many, the price was very low. According to many of the crabbers, this year has been better financially than 1956.

The Spring crabbers were getting their pots and trot lines ready last month for the onslaught on Chesapeake and Mobjack Bay crabs this month. Some of the operators were expected to have their gear overboard by the first of the month; others will wait until around the middle of the month. The Hampton Roads area reported a fairly steady supply of crabmeat through March.

Capt. Henry Owners of New Point, who operated two crab dredges in Chesapeake Bay all Winter, quit early in March to get his boats and nets ready for the croaker fishing. Capt. Henry operates four pound nets in lower Chesapeake Bay, and uses six boats.

Appointed to Advisory Group

On March 5, Governor Stanley of Virginia appointed 10 members for new terms on the advisory group to the Virginia Fisheries Laboratory at Gloucester Point. They are: W. A. Adams of Chincoteague; Natt W. Terry of Willis Wharf; C. E. Crockett of Seaford; Enoch Hudgins, Bavon; Harmon Treakle, Whitestone; Neville Ball, Mt. Holly; Fred Garrett, Jr., Bowlers Wharf; George W. Amory, Hampton; C. A. Bloxom, Battery Park; and R. L. Miles, Jr. of Princess Anne County.

Pound Fishing in Sounds

Capt. Wyatt Pruitt is now fishing four pounds in Tangier and Pocomoke Sounds. His first catch was one shad and 60 herring. But later on his catches improved, and more recently he has been catching from 60 to 65 shad and from 10 to 15 baskets of herring a day.

Temperatures Affect Shad

According to William H. Massmann and Tony Pacheco, fishery biologists at the Virginia Fisheries Laboratory, shad fishermen's efforts are mostly wasted until the water temperatures reach 45 degrees Fahrenheit. For a period of five years, Massmann and Pacheco have been keeping records of the number of shad caught per net fished. Records supplied by York River shad fishermen have aided them in their research.

When water temperatures are below 40 degrees, Mr. Massmann says, almost no shad are caught. Between

40 and 45 degrees a few are taken. The largest catches are made when the temperature of the water is between 45 and 59 degrees. When the water temperature rises above 60 degrees, catches taper off.

The scientists believe that fishermen should welcome what the farmers call a late Spring—that is, a Spring when the temperatures do not rise suddenly and stay high. When there is a slow warming of the water, and the coming of shad is more gradual, fishermen catch shad in reasonable numbers over a long period of time, and the market is not glutted.

Walter Garrett of New Point, seafood dealer and shipper of fishery products, reports that so far shad have been scarce in lower Mathews. Mr. Garrett attributes this to the heavy supply of alewives. These two don't mix well, according to Mr. Garrett. But he says this condition only lasts a few days.

Tangier Crab Dredging Ends

Crab dredging ended its season on the 15th of March, and on this date 12 large crab-dredging boats sailed into Tangier Lagoon and took off their gear. The owners are now getting the boats ready for running freight, such as seed oysters, fish and clams to the cities of the Chesapeake.

Tangier crab potters were taking advantage of the relatively warm days last month to put the final touches on their boats and pots before sailing for the crabbing grounds. Many potters already have left the island and are now fishing their pots in the creeks along the Eastern Shore of Virginia, in the waters around Hampton, and along the Atlantic coast as far as 30 miles north of Cape Charles. According to reports, they have been doing well, catching from 6 to 12 barrels of hard crabs a day.

Capt. Lennie R. Smith

Capt. Lennie R. Smith, 82, veteran boat builder in Mathews County, died of a heart attack in Newport News last month. In his youth, Capt. Smith served his trade at the Newport News Shipyard. He later founded Smith's Marine Railway on Pepper Creek, and several years ago he moved his business to Port Haywood. He specialized in fishing boats.

Hampton Roads Area Landings

The 3,473,800-pound fish catch in the Hampton Roads area during March was slightly larger than in February, but showed a decline of nearly a million pounds from March 1956. Pound nets accounted for only 337,400 pounds of the March 1957 landings.

Rhode Island Seafood Production for Year Shows Big Gain

Total landings of fish and shellfish at Rhode Island ports during the year 1956 amounted to 140.5 million pounds valued at 4.6 million dollars compared with 114.9 million pounds valued at 4.7 million dollars during 1955. Leading species landed in 1956 were menhaden, scup, hard clam meats and fish for industrial use.

Total landings of fish and shellfish during December amounted to 6.2 million pounds valued at \$264,000 to the fishermen. This was an increase of 16 percent in volume and 22 percent in value compared with landings during the same month in 1955.

Striped Bass Legislation

The Fisheries Committee of the Rhode Island House of Representatives last month voted to recommend passage of the sportsmen's bill to protect the striped bass for salt water anglers. Commercial fishermen are greatly opposed to passage of this bill.

Under the provisions of the legislation, seining of stripers would be outlawed. Traps would be allowed, but during the bass runs of the Fall, the trappers would have to remove the leader nets which guide fish into the large traps. The leaders would have to be eliminated during September, October and November.

A compromise bill was offered in which it was suggested that the Committee write into the bill a provision under which the State Director of Agriculture and Conservation could lift the prohibition on leaders if the commercial operators could demonstrate serious economic impact.

Would Change Licensing

Sen. Frank A. McMurrough of Tiverton last month proposed in a bill that the advisory council on fish and game take over all licensing authority over fishing. Licenses for fishing, both sports and commercial, now are provided for specifically in the various statutes. John L. Rego, State Director of Agriculture and Conservation, believes the licensing procedure should be left as it is.

Sen. McMurrough also introduced a bill requesting \$25,000 to continue the State's program for transplanting shellfish from polluted to unpolluted waters.

Earlier in the month, Sen. McMurrough introduced two resolutions—one to have an area in the west passage of Narragansett Bay below Quonset Point opened to shellfishing before the Navy starts using it as a seaplane base; and a second measure urging shellfishing in another area of the bay when the Navy is not using it as a torpedo range.



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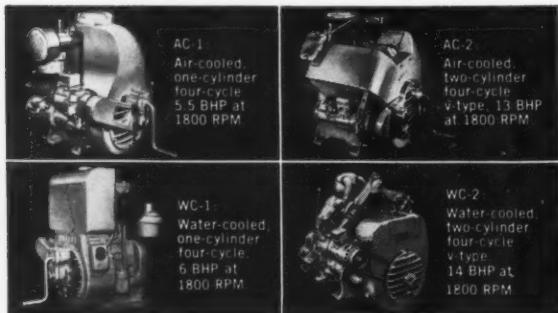
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Texas Shrimpers Hampered By Squally Weather

Any advantage gained by opening the bays and inland salt waters to large shrimp trawls March 1 was more than offset by squally weather along the Texas Gulf Coast, together with very rough seas on the lower Gulf of Mexico shrimp grounds.

The favorable conditions existing in late January and early February, which brought landings of shrimp to 2,300,000 pounds, were reversed in the succeeding 30-day period, when production dropped to 1,608,400 pounds of heads-off shrimp for the principal Texas ports. All shrimp were brown-grooved, 70 percent being within the 15-20 count. Brownsville was first in production, with Port Isabel and Corpus Christi almost tied for second.

With the opening of the bays to large trawls, after having been closed since December 15, a large number of small trawlers dragged the area from the Sabine to Corpus Christi, with poor results. After finding that the larger shrimp had not come into the bays, the trawlers returned to the docks to await the early runs.

Medium-sized trawlers working the area from the shoreline to the 16-fathom contour failed to find enough shrimp to show a profit on the few nights when weather permitted work. The Two Brothers firm at Ingleside, owner of the coast's most modern fleet of bay and medium trawlers, failed to find shrimp.

It seems certain, however, that with the settling of the weather—always rough at this season—trawlers will move out again on the long Gulf cruises and shrimp again will pour into the processing plants as ever before.

Finfish Landings Heavy

Landings of edible finfish have been unusually heavy since the first of the year. When weather permitted, snap-boats were on the "nobs" and "banks". They made very heavy catches, some getting from 2 to 5 tons per trip, with from 2 to 4 fishermen using hand lines.

Netters in the bays have had good catches of speckled sea trout, red drum, and some flounders. Commercial fish landings totalled nearly 200 tons.

Oyster Production Increases

After a slack period the first of the year, the oyster yield is up along the upper coast, with some production in the Rockport and Matagorda areas. Incomplete reports for the 30 days during the last of February and the first three weeks of March showed a minimum production of 3,750 barrels.

Should Carry Flare Guns and Life Rafts

With the loss of life at sea increasing, the Coast Guard has given some tips which they believe should help in rescue operations. As one example, the Coast Guard points out that the three men on the trawler *Lucky Star* could have been rescued hours earlier had their vessel been equipped with a flare gun and life raft. The men wore only life jackets and clung to hatch doors or other debris from the sunken trawler. Eleven parachute flares dropped by planes directly above the floating crewmen failed to show them up in the darkness and rough seas. Although the Coast Guard was working all the time, the men were not rescued for 12 hours after the *Lucky Star* sank, which was too late for one of the crewmen.

A large capacity bilge pump, complete with a power unit, which could be dropped by a plane to a distressed sinking craft, is now undergoing tests in the Corpus Christi area. During the tests, the pump with floats and a parachute attached, has been dropped alongside a trawler and retrieved within a few minutes by the trawler's crew. According to the Coast Guard, such equipment might enable a sinking craft to remain afloat, at least until rescue help arrived.

Our 600th TRAWLER

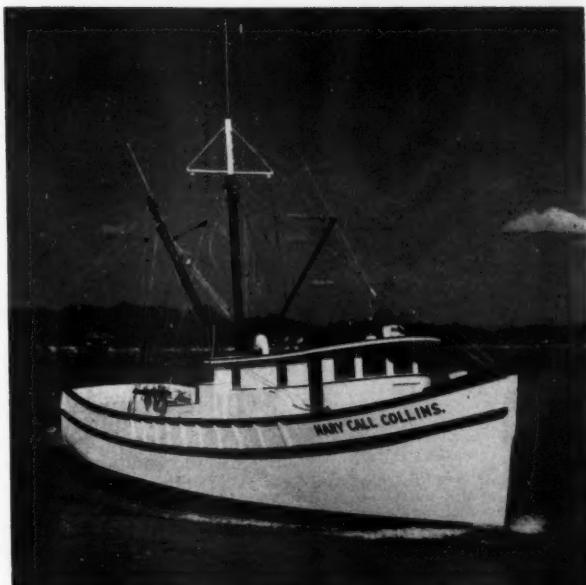
"Mary Call Collins"

The "Mary Call Collins" is the 600th fishing boat built at our yard in 14 years—an unparalleled building record! She is 29th trawler we have turned out for Versaggi Shrimp Co., who have two more hulls under construction—an outstanding example of customer satisfaction.

"Mary Call Collins" has the speed and seaworthiness needed for long-range shrimping. She is designed and equipped for profitable operation and maximum conveniences for the crew.

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Wants Aransas Pass Channel Deepened

Conn Brown, newly-elected Mayor of Aransas Pass, has indicated that his principal interest is to have the channel from Aransas Pass to Harbor Island on the Intra-coastal Canal deepened, with the spoil being used to build and improve the now inadequate causeway to Mustang Island and Port Aransas. The present depth of the Aransas Pass Channel is 12 feet. Applications are on file to deepen this channel to 24 feet.

Oppose Bill Limiting Size of Shrimp Nets

Strong opposition is being voiced by the Texas Shrimp Association against House Bill 610, now being considered by the Texas Legislature. Sydney Herndon, the Association's president, said that he considers the bill "vague and ambiguous", and that under its restrictions shrimp producers would find it almost impossible to operate. The measure calls for limiting the size of shrimp nets to 35 feet in lakes, bays, inland or tidal water. Shrimp salesmen also would be licensed.

An argument has been underway for years concerning the definition of "tidal waters", Mr. Herndon stated. "If that includes the Gulf," he said, "we couldn't haul enough shrimp in to make it profitable".

Nets now in use by shrimpers range in size upward to 90 and 100 feet.

Gulf States Commission Meets at Austin

The Gulf States Marine Fisheries Commission held its regular Spring meeting in Austin, Texas, March 21-22. The general sessions gave consideration to such subjects as: (1) Is artificial propagation of marine fishes feasible to improve annual production? (2) Should areas be set aside as nursery grounds to aid in annual crop? (3) What effect does siltation have upon production? (4) Is physical improvement to adjacent land needed to improve fish production? (5) Is physical improvement to inland waters possible, so as to improve fish production?

Mississippi Fishermen Form New Labor Union

Fishermen of the Mississippi Coast have formed a new union to be known as the Fishermen and Allied Workers' Union, affiliated with the AFL and the National Maritime Union.

The objects are to bring about the effective organization of fishermen and all those who work in and about the fish and seafood industry and to unite them for common action into a labor union for their mutual aid and protection.

Big Week for Shrimp

The ports of Biloxi and Pascagoula reported landings of 12,800 pounds of shrimp for the week ending March 8, according to the Fish & Wildlife Service. The shrimp landings increased over the previous week and were more than a year ago. Prices remained high, with demand good.

The oyster take for Mississippi for the same period amounted to 9,065 barrels, and the crab catch amounted to 6000 pounds.

Landings for Year Show Gain

During 1956 total landings of fishery products at Mississippi ports amounted to 195.2 million pounds—an increase of 28 percent compared with the total landed in 1955. A gain of 44.6 million pounds in receipts of menhaden was the principal reason for the increase.

Receipts of commercially-caught fish and shellfish at Mississippi ports during December amounted to 1.3 million pounds. Compared with the production of these items reported for the same month of 1955, this was an increase of 55 percent. The gain was due primarily to increases in the catch of blue crabs and shrimp.

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HDD-8-175	175	150
SMR-8-188	188	152
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SMR-8-230	230	186

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Louisiana Scientists Find Chemical Ices Extend Shrimp Freshness

New discoveries on the use of chemical ices for the preservation of shrimp were announced recently by agricultural chemists at Louisiana State University. Dr. Ernest A. Fieger, Professor and Head of the Department of Agricultural Chemistry and Biochemistry, directed the studies.

"Some of the chemical ices extended the storage life of shrimp from two to three days and prolonged the period of top quality as much as three days. Shrimp stored in sodium bisulfite and chlortetracycline (CTC) ices had less off-odors, were firmer and less slimy than those packed in ordinary ice," Dr. Fieger said. He added that the chemical ice also proved to be "very effective" in preventing black spot on shrimp, particularly during the latter part of the storage period when it becomes most severe.

The problem of spoilage has become greater in recent years because of the use of larger shrimp boats which travel greater distances. The Agricultural Experiment Station's research was supported by grants awarded by the American Cyanamid Co., the Louisiana Wild Life and Fisheries Commission and the Shrimp Association of the Americas. Research was conducted over an 18-month period.

Shrimp Production Light

January, February and March are generally slow months in the shrimp production industry, but this year catches have been unusually light. Packing plants at Morgan City, Berwick and Patterson report a total of 124,900 pounds of white and brown shrimp handled in January and 111,500 pounds of both white and brown shrimp in February.

Trawlers were fishing for the most part around Trinity Shoals. Trips out to 20 and 21 fathoms in search of brown shrimp were disappointing. Only 2,900 pounds were reported during January, with 8,000 pounds caught in February. However, this represented the catch of a great many boats.

Shrimpers are hoping that April and May will show much improvement. In the past few years, these have been the big months for trawling.

Unloads Frozen Shrimp

The Costa Rican vessel West Wind—only foreign vessel calling regularly at Morgan City—was in again last month, at which time it unloaded 120,000 pounds of frozen shrimp into refrigerator trucks waiting at the dock. Owned by an American,

Jack Sabel, the West Wind is operated regularly between Carmen, Mexico, and Morgan City. Mr. Sabel owns a freezer plant in Carmen and several shrimp trawlers which are documented in Mexico.

Gloucester Vessel Owners Seek Solution To Insurance Problem

Increasing rates for protection and indemnity insurance caused the Gloucester Vessel-Owners Assoc. to reorganize last month. The Association will back proposals to be sent to the Department of Interior to suggest solutions to the problem.

Ignacio Palumbo of the Empire Fish Co. reported that the protection and indemnity insurance rates for his firm's three druggers—the Puritan, Pilgrim and Columbia—will go from \$2500 a year per boat to \$3400—a 28 percent increase. The increase in Salvatore Ciaramitaro's Mary Rose will be over 100 percent.

One solution is to reduce the number of claims by raising the safety standards. However, boat owners up until now have not been too enthusiastic about possible Government inspection.

Enjoying Fine Lenten Season

According to three Gloucester fisheries leaders, the present Lenten season is proving the best ever as far as fish sales are concerned.

Frederick Bundy, president of Gorton's, reports that business is very good and that sales will go higher than last year.

John DelTorchio of Cape Ann Fisheries reports that fresh fillets have been selling very well, and in general a better season than last year is expected.

Ignacio Palumbo of the Empire Fish Co. stated that sales were up even before Lent, with a particularly good demand for dressed whiting.

Fish Cannery Being Removed

Work was started last month on tearing down the old Pew cannery off Howe St., a property of Gorton's of Gloucester. It is expected that Gorton's will use the space for expansion and storage.

Spencer A. Dagle

Spencer A. Dagle, 58, died last month in Gloucester. He formerly was sales and service engineer for the Gloucester branch of the Engine Division of National Supply Co. When White Motor Co. took over the manufacture of Superior and Atlas Diesels, Dagle went with White Diesel Engine Division. Later he was employed by Gorton's of Gloucester in charge of handling parts and services for White Diesel.

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Alaska Salmon Regulations for 1957 Include Area Registration

Changes in the Alaska commercial fishing regulations, to be effective during the 1957 season, have been announced by Assistant Secretary of the Interior Ross L. Leffler. The area registration provisions, instituted in 1956, which prohibited movement of salmon fishing boats and nets from one area to another, will be continued.

Highlights of the 1957 regulations as considered by areas show that the fishing gear timetable of control used in Bristol Bay in 1956 will be continued and expanded. One new feature in Bristol Bay is that the picking of salmon from gill nets is deemed to be a part of the fishing operation and must be performed by the fisherman to whom the gear is legally registered.

In the Alaska Peninsula area, gear timetable control will be applied in the Bear River district. Only the fishing time to be allowed at the opening of the season will be affected. Weekly adjustments are not provided for. A relaxation in the northeastern district will permit purse seines to be used as far east as the entrance to Port Heiden, after July 10. The July 10 date has been specified to insure that Bristol Bay red salmon runs will have passed that area before the season opens. On the south side of the Alaska Peninsula the pink salmon season will close August 2 because of anticipated smaller runs.

In the Chignik area the closed waters at the inner end of the lagoon have been increased to prevent overfishing there at low tide. To reduce the fishing effort further, all traps in the area have been closed for 1957, and the weekly closed period has been split so as to provide more even escapement of salmon to the spawning grounds.

Eliminate Midseason Closure in Kodiak Area

The main change in the Kodiak area is the elimination of the midseason closure during the pink salmon season. This relaxation will be offset by an increase in the weekly closed periods, designed to provide more even distribution of escapements. Minor changes include the creation of the Olga-Moser Bay section of the Alitak district so that protection to the red runs there can be applied without affecting the pink salmon runs in Alitak Bay, and the creation of the Sturgeon River district to permit harvesting chum runs to the Sturgeon River without affecting the runs of red salmon to Red River.

In Cook Inlet, gear timetable control during the red salmon season from July 1 to July 27, will be applied. It will be of the type designed for the Bear River district in the Alaska Peninsula. As in Bristol Bay, during the July 1-July 27 season, gill nets will be required to be picked by the crews to whom registered. In addition, the regulations have been rewritten to close areas where set nets are not now used.

In Prince William Sound the season will not close until August 10. However, in order to limit the fishery, in view of the mediocre runs expected, fishing will be controlled by reductions in gear. Essentially, gear reduction in 1957 is to be accomplished by voluntary closure of all but 11 of the 42 traps; increases in closed areas in a number of bays; and gear timetable control of purse seines based on 135 seines.

The only significant change for the Yakutat area is an increase in the weekly closed periods to August 11 to afford greater protection to the red salmon runs because of a continuing increase in the amount of gear in that area.

Two major changes were made in the gill-net fisheries. The first provides for limited use of gill nets at Lake, Salmon, and Red Bays to harvest the red salmon runs which have not been tapped in recent years.

Burroughs Bay will be closed to fishing this year. This fishery has been criticized because king salmon taken there are consistently of poor quality, and it is felt that these mature fish should be protected for escape purposes. The waters of Portland Canal have been opened to the use of gill nets.

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EQUIPMENT and SUPPLY NEWS

New Wilfrid White Wind-Speed Indicator

Of interest to boatowners is the new low-priced wind-speed indicator, manufactured by Wilfrid O. White & Sons, Inc., Boston, Mass., who also make Constellation, Corsair and Corvette compasses, SurEcho and White depth sounders, and the White automatic pilot. The new wind-speed instrument is accurate within 2 percent and is both calibrated and compensated.

The indicator is housed in an attractive 5½" brass case, with 4" silvered dial under clear polished glass. There are two scales: from 0 to 50 mph. and 0 to 120 mph. for precise readings at all velocities. A convenient switch is used to change from one scale to the other. Scales can be furnished to read in mph. or knots.

The White wind-speed indicator supplies its own current, and therefore can be used where no electricity is available. There are no brushes, contacts, or slip rings, and no lubrication is required. The instrument is supplied with standard 5' aluminum mast and 60' of flexible cable. It is also available in chrome, and with a special mounting bracket for boats. Extra cable can be obtained.

New Waukesha Supercharged Diesel

The latest Waukesha supercharged engine model, the 197-DLCS, which is suited for marine use, is a compact and powerful heavy-duty, six-cylinder, four-cycle, full Diesel engine of 302 cubic inch displacement. The exhaust turbocharger system of supercharging affords a great increase in horsepower with a minimum of parasite load. Even without an intercooler, the maximum power available from the engine is 131 hp. at 2800 rpm. Without positive drive from the engine, the parasitic load decreases at part engine load, which improves over-all fuel economy throughout the speed range.

The exhaust turbocharger is mounted directly on the manifolds. The new Waukesha Diesel's Stellite faced valves seat on Stellite faced inserts, and lifters are of the hardened and ground mushroom-type. The Waukesha iron crankcase-cylinder casting with dry sleeve renewable alloy liners is used.



Wilfrid White wind-speed indicator.

The heavy 7-bearing drop-forged, heat-treated steel crankshaft has hardened journals and precision-type bearings. The engine has heavy-duty aluminum pistons with chrome top ring. The patented combustion chambers, which are featured on Waukesha Diesels, burn all standard "high-speed Diesel fuels" having cetane values of 45 or above.

The cooling system includes efficient belt-driven pump and by-pass flange-mounted at the front of the cylinder block to provide positive circulation of coolant. The engine has full pressure lubrication by gear-driven, gear-type pump to main, rod, camshaft, and piston pin bearings. The fuel system includes Roosa single plunger flange-mounted injection pump with drawn steel injection lines to single orifice pintle nozzles.

American Marc Promotes Livingston, Jones

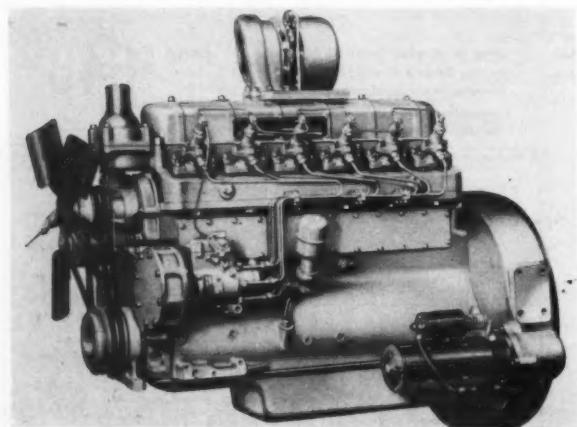
Russell G. Livingston, a veteran of 15 years with the Hallett Manufacturing Co., has been appointed Vice President Sales of American Marc Inc. American Marc last year purchased the Diesel Engineering Division of the Hallett Co. Wren Jones, employed at the Hallett firm for six years, at the same time was advanced to Parts and Service Manager, and assistant to Livingston in sales promotion.

As Vice President Sales for American Marc Inc., Livingston is heading an aggressive new series of advertising campaigns and is reorganizing the sales distribution of the engines. He started with the Hallett Co. as a project engineer and later became manager of the engineering department, directing all research, engineering and laboratory work as well as Government contract administration. Transferred to Assistant Sales Manager, Livingston soon afterwards became Sales Manager.

Mr. Jones' background for sales and service administration was gained by experience as a technician in field service, field installation, and testing and laboratory experiments with the Hallett Diesels. He has a broad knowledge of the problems confronting engines in many areas due to his Diesel research and development in climatic laboratories.



Russell G. Livingston



Waukesha 197-DLCS supercharged Diesel engine.

New Premium "Marine Exterior" Plywood

A new premium grade of fir plywood specifically designed for hull planking on all kinds of boats up to 60 feet or more has been announced by Douglas Fir Plywood Association, Tacoma 2, Wash. Called "Marine Exterior", the new product is an intermediate panel of far higher quality construction than standard grades of Exterior fir plywood, but more economically priced than the Military Boat Hull grade called for in some Government specifications.

The difference is in the panel make-up, not the glue. Specifications for the new Marine Exterior grade call for virtually solid inner ply construction. They require tightly jointed cross-ply and permit no more than four core-gaps or splits, which are limited to 1/8" widths. Repairs on panel faces are rigidly limited to no more than four veneer patches.

Like other grades of Exterior fir plywood, the panels are bonded under heat and pressure with synthetic

Solesmen and executives of The Heminway & Bartlett Mfg. Co. gathered together at a recent three-day sales meeting in Watertown, Conn. Standing, from left to right: E. Vogel, R. Noonin, J. Vine, E. Cox, M. Paulsen, M. Cohen, H. Spray, A. Lamme, H. Zettwoch, R. Taylor, D. Purdy and S. Smith. Seated: J. Burg, E. Reitt, W. S. Heminway, Ethel Merklen of the R. T. O'Connell Advertising Agency, W. E. Thompson, C. D. Houk, H. W. Schott, and S. Sackheim.



phenolic resin adhesives which produce a permanently waterproof bond. Marine Exterior will be available in four-foot widths, and in standard eight-foot length or longer lengths on special order. It also will be available with resin fiber overlays which provide an ideal base for a durable, long-lasting paint cover. This premium surface eliminates checking, grain raise, and other painting difficulties sometimes encountered with rotary-cut fir plywood under severe exposure conditions.

The marine grade is manufactured under the Association's industry-wide cooperative testing and quality control program to assure conformance with the rigid specifications covering the panel make-up. The grade can be positively identified by the mark "Marine EXT-DFPA" flanked by two anchors branded into the panel edge.

Leaflet on Model 40 Superior Diesels

Bulletin 109 explains an improved line of Model 40 "Superior" Marine Diesels developed by the White Diesel Engine Div. of the White Motor Co. The four-cycle, six and eight cylinder, naturally aspirated or supercharged engines are especially designed for large fishing boats.

Design simplicity of the new vertical in-line "Superior" engine reduces maintenance costs, permits on-the-spot overhauls. The rigid marine type base, fully supporting the crankshaft, eliminates engine strains imposed by crankshaft "swung" from cylinder block. The counter-weighted, statically-dynamically balanced crankshaft assures smoother power and faster acceleration for greater maneuverability.

The constant, full pressure lubrication system, operated by a built-in oil pump, provides a constant flow of oil for all internal parts. Other design features include an improved open chamber combustion system which permits use of non-premium fuels and reduces fuel consumption up to 35 percent. The camshaft is precision machined from a single length of high strength steel.

The split, precision type main bearings have extra large bearing areas. Top and bottom shells are interchangeable and can be easily replaced without removing the crankshaft.

Individual, two valve cylinder heads on the Superior engine are removable and interchangeable. One piece, "wet type" cylinder liners are also interchangeable, and the simplified liner design eliminates ports, passages, vents and jackets.

The new colorful eight-page bulletin No. 109 shows dimension drawings, photographs, performance charts and explains in detail construction features of the engines. Literature can be obtained from Harry Clark, Advertising Manager, White Diesel Engine Div., Springfield, Ohio.

Norseman Marine Engine Instruction Book

Norseman Marine, now manufacturing the Knight, Tarpon, Marlin, Bullet, Arrow, and Bluefin marine engines, formerly known as Nordberg marine engines, now offers a new comprehensive instruction book covering all six cylinder models. This new manual is priced at \$2.50, and copies can be obtained by writing Norseman Marine, 105 Nevada St., Oshkosh, Wis.

The 88-page, attractively bound book is well organized and clearly illustrated and contains well written instructions on the installation, operation and maintenance of the firm's entire line of six cylinder engines. The repair section should be of special interest to owners who wish to make their own repairs. This section contains detailed repair and lubrication information in chart form and 20 "exploded" view illustrations showing a detailed parts breakdown for each model.

Annual Heminway & Bartlett Sales Meeting

A three-day meeting of the executives and sales staff of The Heminway & Bartlett Mfg. Co. of New York and Watertown, Conn., was held recently in Watertown. After an extensive tour of the plant and research laboratories, under the guidance of W. E. Thompson and H. W. Schott, the business meetings were held at the Waterbury Club.

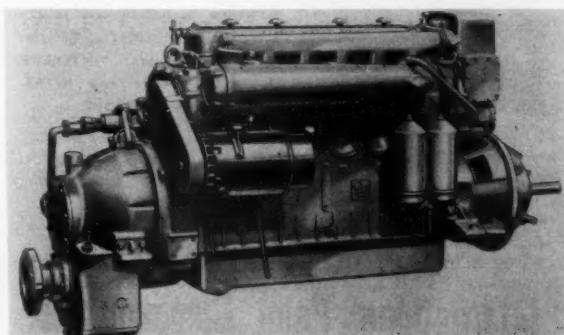
Among the speakers at the meeting were W. S. Heminway, President, who told of the Company's plans for future expansion; C. Duane Houk, Sales Manager, who covered the thread-selling picture throughout the country; and W. E. Thompson, Research Director, who talked of new products and research development.

A feature of the meeting was a round-table discussion among all of the salesmen on the technical and selling aspects of thread in the many industries served by Heminway & Bartlett.

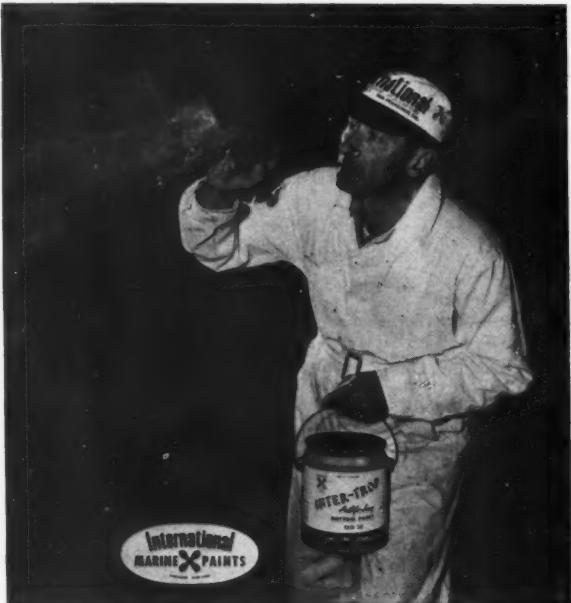
Increase Power of GM Series 71 Diesel

The Detroit Diesel Engine Division of General Motors Corp., Detroit 28, Mich., has announced a new Series 71 "E" model for work boats which develops 170 shp., or 15 percent more continuous horsepower than comparable models in the Division's line.

Largely responsible for the model's increased efficiency is improved combustion resulting from better engine breathing. This is brought about with a minimum number of mechanical changes in the already-efficient Series 71 engine. Larger air-intake ports substantially in-



Detroit Diesel's new 6071 "E" workboat model which has a fixed full-throttle rating of 170 shaft horsepower. The engine shown has GM reverse and reduction gears and front power take-off.



The Paint That Saves You Fuel

INTERNATIONAL BOTTOM PAINTS do keep bottoms clean. They are therefore, bound to save on fuel bills. You as a boatman know that an ordinary coating of barnacles and grass can increase fuel consumption 10% or more. Furthermore, INTERNATIONAL Bottom Paints are lasting. They offer protection to the bottom and retain their antifouling properties far longer than ordinary paints.

There are several INTERNATIONAL Bottoms made to meet the various types of service and price limitations. Each is the outstanding paint of its kind. Send for color cards and price lists.



FOR METAL BOTTOMS

INTERNATIONAL has developed a combination of a primer and an antifouling paint that offer the maximum protection and preservation of metal bottoms. Send for the two circulars, "INTERLUX SILVER PRIMOCON" and "INTERNATIONAL SUPER-TROP".

International
ANTIFOULING
BOTTOM PAINTS
International Paint Company, Inc.

21 West Street, New York 6, N. Y. • S. Linden Ave., S. San Francisco, Cal.
628 Pleasant St., New Orleans, La.

WORLD'S LARGEST MARINE PAINT MAKERS

crease the supply of fresh air forced into the cylinders by the engine blower, while an increase from two to four in the number of exhaust valves per cylinder provides a faster and more complete discharge of exhaust gases.

The fixed continuous horsepower rating on the new model is accomplished at the factory by limiting the fuel input. This is an outstanding feature which contributes substantially to longer engine life. Installed in a properly wheeled boat, the engine works constantly in its most efficient operating range, which is an important economy feature. A ten percent improvement in specific fuel consumption is claimed for this engine.

The new model is a six-cylinder unit which retains the small size and low weight-to-horsepower ratios of all Detroit Diesel two-cycle engines. It is available in both starboard and port models (6071E and 6072E) with GM reverse and reduction gears ranging from 1:1 to 4.5:1.

Changes in Roebling Sales Department

Earl A. Frazier has been appointed New York district sales manager for the Wire Rope and Aircord Division of John A. Roebling's Sons Corp. He will have his headquarters in New York and will be in charge of the Division's sales activities covering New York, northern New Jersey, and New England.

Mr. Frazier, formerly Cleveland district sales manager, has been associated with the Roebling Corp. since 1938. He attended the University of Idaho, and during World War II served 43 months in the Pacific Theatre.

Elmer A. Trask has been named Cleveland district manager for Roebling, to succeed Mr. Frazier. Trask was formerly product sales manager at Roebling's main office and plant, Trenton, N. J., and has been associated with Roebling for 33 years. His new sales area is an extensive one, including Ohio and sections of Michigan, West Virginia, Pennsylvania and Western New York State.

Mr. Trask started as a warehouseman and splicer at Roebling's San Francisco office. After advancing through various departments, he became a salesman in 1931, later serving successively as manager of the Roebling San Francisco and Chicago sales territories.



Earl A. Frazier

Appointments in Columbian Rope Sales Dept.

Legare R. Hole, recently elected Vice-President of Sales of the Columbian Rope Co., has announced the following new appointments in the Sales Department.

H. Davis Daboll becomes Manager of the New York Branch to succeed Elmer J. Ogden, who has been named Assistant Sales Manager of the Company. Mr. Daboll has been with Columbian Rope 22 years, and most of his time has been spent in sales work. For approximately the past year and a half he has been working very closely with Mr. Ogden at the Company's New York Branch.

Fred Carroll has been appointed Assistant Manager of Rope of the New York Branch. Mr. Carroll has been associated with Sales at that office for several years, and has devoted his services largely to the marine trade.

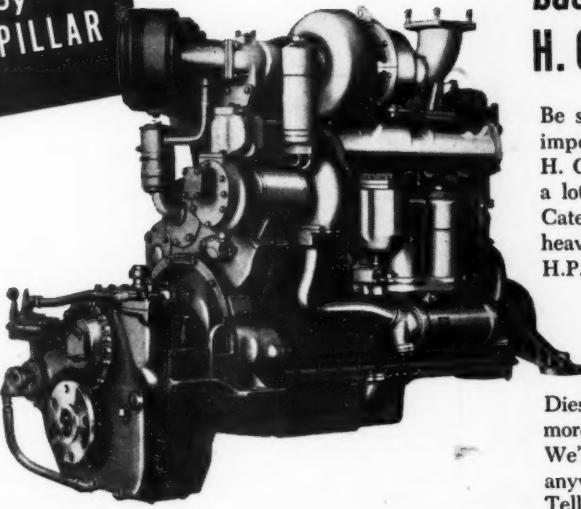
Caterpillar's History of Diesel Making

"A Quarter Century of Diesel Leadership," just released by Caterpillar Tractor Co., tells the story of the Company's many engineering achievements since its entrance into the Diesel engine field in 1931. Among the important accomplishments discussed is the Caterpillar fuel injection system, the development of detergent oils, the induction hardening of cylinder liners and camshafts.

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CATERPILLAR



For Dependable CATERPILLAR Marine Power, See Us!

H. O. PENN MACHINERY CO., INCORPORATED

140th Street and East River, New York, N. Y.

1561 Stewart Avenue, Westbury, L. I., N. Y. Dutchess Turnpike, Poughkeepsie, N. Y.
136 Day St., Newington, Conn. Route 17, Tuxedo Park, N. Y.

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

CATERPILLAR

sales • parts • service

and the use of aluminum alloy main and connecting rod bearings.

Illustrated with both photographs and drawings, the booklet depicts installations where early model Caterpillar Diesels are still on the job. Each illustration is accompanied by information describing the engine's application and history. Also shown is the Company's current line of Diesel engines represented in various power arrangements.

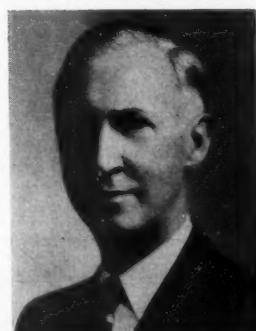
Copies of "A Quarter Century of Diesel Leadership" are now available from Caterpillar dealers or by writing Caterpillar Tractor Co., Peoria, Illinois. Form number D703 and the booklet's title should be included when requesting this literature.

Whitlock Elects Edwards Vice-President

The Board of Directors of Whitlock Cordage Co. recently announced the election of Frank W. Edwards as Vice-President. He will continue in charge of sales at the Company's main offices, 46 South St., New York City.

Mr. Edwards has been with Whitlock for many years, and has a wide acquaintance throughout the industry and in the marine field. Prior to his association with Whitlock, Mr. Edwards spent considerable time in the oil country, where he was in charge of sales of Camel Hair belting.

The Whitlock Cordage Co. is one of the oldest firms in the United States. It manufactures every kind and size of hard fiber and synthetic rope and twine.



Frank W. Edwards

backed by — H. O. PENN MACHINERY CO.

Be sure your next marine engine has two very important nameplates on it: Caterpillar and H. O. Penn Machinery Co.! These names mean a lot to you in service, satisfaction and profits. Caterpillar Diesel Marine Engines are modern, heavy-duty engines, available in sizes up to 500 H.P. Careful engineering plus years of experience result in diesels that give you thousands of hours of economical, trouble-free service.

Just as important, we at H. O. Penn Machinery Co. stand behind your Cat Diesel Engine with our complete facilities with more than 100 servicemen and 30 parts men. We're prepared to give you dockside service anywhere in New York State and Connecticut. Tell us how we can serve you!

South Carolina Ends Free Gathering Of Oysters from State Beds

The free gathering of oysters for personal use from State-owned oyster beds will end May 1, with the current oyster season. Beginning next year, individuals may gather oysters only from certain areas set aside in each county for such purposes.

The new regulations are covered in a law passed last year by the General Assembly. Just where the individual county public oyster areas will be established has not been completely decided. At present, only one area—a portion of Folly River and Folly Creek—has been set aside in Charleston County.

Alabama Night Shrimping Opens

Night shrimping opened in Alabama waters of the Mississippi Sound and Navy Cove areas on March 11. B. B. Larrimore, chief of the Conservation Dept., said the areas were checked and shrimp were found to be running about 30 to 34 per pound. The shrimp are of the brown and pink variety, locally called "Hoppers". These shrimp can be caught only at night, and will not remain in Alabama waters very long.

Boundaries of the night shrimping areas are: that part of Mobile Bay south of a line from the artesian well at Alabama Port to beacon 12, to Fish River beacon; also in the Mississippi Sound west and south of a line from the Dauphin Island range beacon to Barren Point, to South End Beacon, to the main shore line of the Alabama-Mississippi border.

Day and night shrimping will be permitted until small shrimp appear in Alabama waters, approximately 30 days.

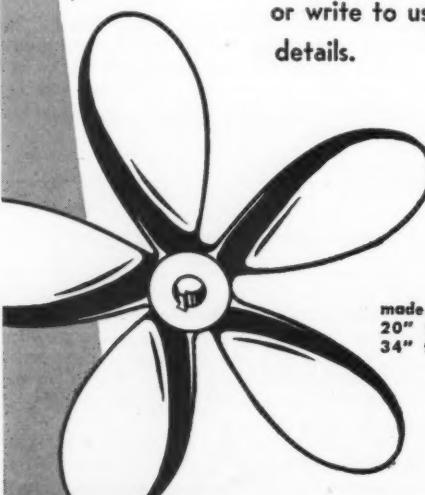


**Did You Say:
"IMPROVED"
Performance?**

LISSEN MISTER,

if your boat has any considerable amount of vibration, when you change to a FEDERAL VIBRA-FREE 5-blader you'll know that "improved" just doesn't begin to describe how much better your boat performs . . . you will enjoy almost unbelievable smoothness, added speed, better steering and a very real saving in fuel. Usually no change in diameter or pitch is required and the cost is just a little more than a standard 3-blade wheel. See your FEDERAL dealer or write to us for further details.

made in two series:
20" thru 24" and
34" thru 60" dia.



**FEDERAL
PROPELLERS**

GRAND RAPIDS 3, MICHIGAN

BOAT CATCHES

For Month of March

Hailing fares. Figure after name indicates number of trips.

NEW BEDFORD (Mass.)

Adventurer (3)	37,000	Linda & Warren (2)	24,700
Anastasia E. (1)	10,500	Lorine III (2)	27,000
Annie Louise (1)	8,300	Major J. Casey (3)	47,100
Annie M. Jackson (4)	42,800	Marie & Katherine (2)	19,500
Austin W. (2)	14,400	Mary E. D'Eon (2)	26,500
Barbara M. (4)	43,500	Mary Tapper (3)	70,000
Cap'n Bill II (3)	57,300	Midway (3)	49,200
Carl Henry (2)	25,600	Molly & Jane (2)	20,700
Charlotte G. (2)	29,600	Olive M. Williams (3)	28,000
Christina J. (3)	34,800	Pauline H. (3)	240,800
Christine & Dan (3)	27,200	Phillip & Grace (2)	51,500
Comber (4)	44,100	Phyllis J. (3)	30,100
Connie F. (1)	27,000	Plymouth Belle (1)	12,500
Elva & Estelle (2)	26,000	Roberta Anne (3)	36,700
Eugene & Rose (2)	22,500	Rosemary V. (2)	23,100
Eunice-Lillian (3)	62,700	Rush (3)	49,800
Falcon (3)	42,600	R. W. Griffin, Jr. (3)	61,500
Famiglia (3)	37,100	St. Ann (3)	49,400
Gannet (2)	45,800	Shannon (3)	37,000
Glady's & Mary (3)	69,000	Solveig J. (3)	160,000
Growler (3)	36,700	Stanley B. Butler (2)	139,000
Harmony (3)	48,700	Star of the Sea (1)	37,800
Hope II (2)	35,000	Stella Maris (1)	17,000
Invader (2)	79,900	Sunbeam (3)	38,000
Ivanhoe (3)	39,200	Teresa & Jean (1)	42,800
Jacintha (3)	151,000	Venture I (2)	31,500
Janet & Jean (2)	36,500	Victor Johnson (3)	43,800
Joan & Tom (1)	8,500	Viking (4)	61,600
Julia DaCruz (2)	32,600	Whaler (3)	98,800
Kelbarsam (2)	12,000		

Scallop Landings (Lbs.)

Abram H. (2)	21,500	Laura A. (2)	18,500
Adele K. (1)	4,000	Lauren Fay (2)	22,000
Aloha (2)	21,000	Linus S. Eldridge (2)	19,200
Alpar (2)	16,300	Louis A. Thebaut (2)	14,800
Amelia (2)	14,100	Louise (2)	22,000
Babe Sears (2)	19,000	Lubenray (1)	8,500
Baltic (2)	22,000	Maline & Marie (2)	13,900
Barbara & Gail (1)	11,000	Marmax (2)	17,500
B. Estelle Burke (1)	11,000	Mary Anne (2)	22,000
Bobby & Harvey (2)	15,600	Mary J. Hayes (1)	4,300
Brant (1)	11,000	Mary J. Landry (1)	8,500
Bright Star (2)	22,000	Michael F. Densmore (1)	8,000
Camden (2)	14,000	Moonlight (2)	15,500
Carol & Estelle (1)	2,400	Nancy Jane (2)	15,000
Catherine C. (1)	9,500	Nellie Pet (3)	33,000
Clipper (2)	22,000	New Bedford (2)	22,000
Dartmouth (1)	11,000	Newfoundland (2)	21,500
David A. (1)	9,500	Noreen (2)	22,000
Debbie Jo-Ann (2)	19,000	Norseman (1)	9,000
Dorothy & Mary (1)	7,500	Pearl Harbor (1)	11,000
Edgartown (3)	33,000	Pelican (3)	30,500
Elinor & Elsie (2)	15,000	Porpoise (1)	8,000
Elizabeth N. (2)	18,100	Rosalie F. (1)	5,700
Enterprise (2)	21,500	Ruth Moses (2)	11,100
Eugene H. (2)	14,800	Sea Ranger (2)	10,600
Fairhaven (2)	20,000	Sippican (2)	22,000
Flamingo (3)	27,000	Stanley M. Fisher (1)	11,000
Fleetwing (2)	21,500	Ursula M. Norton (3)	33,000
Florence B. (1)	10,500	Vivian Fay (1)	8,300
Jerry & Jimmy (1)	9,500	Wamsutta (2)	18,500
John G. Murley (2)	21,500	Whaling City (2)	19,800
Josephine & Mary (2)	22,000		
Kingfisher (2)	18,000		

ROCKLAND (Me.)

Araho (3)	348,000	Louise G. (2)	44,000
Elin B. (3)	113,000	Mabel Susan (3)	62,300
Ethel B. (5)	15,200	Margaret Jean (4)	13,200
Flow (1)	82,000	Myrt II (2)	3,200
Helen Mae II (5)	83,000	Romerly (3)	8,800
Little Growler (3)	65,000		

Scallop Landings (Lbs.)

Pocahontas (1) 11,000

GLOUCESTER (Mass.)

American Eagle (6)	81,000	Little Joe (7)	20,000
Ann & Marie (2)	3,000	Margaret Marie (4)	14,500
Anna Guarino (6)	9,000	Marianna II (2)	21,500
Annie (8)	13,000	Mary (4)	4,500
Anthony & Josephine (5)	22,500	Mary Ann (5)	65,000
Baby Rose (1)	90,000	Morning Star (6)	38,000
Cape Cod (3)	14,500	Mother Ann (1)	245,000
Carlannuls (6)	18,500	Nancy & Maria (9)	13,000
Carlo & Vince (4)	31,000	Natale III (6)	92,000
Catherine B. (3)	110,000	Njorth (4)	11,500
Charlotte M. (1)	70,000	No More (4)	4,000
Cigar Joe (4)	82,500	Olympia (4)	68,500
Dawn (6)	8,600	Peggy Belle (4)	3,000
Dolphin (4)	398,000	Pioneer (9)	36,500
Doris F. Amero (3)	205,000	Prosperity (11)	31,500
Eddie & Lulu M. (9)	22,500	Puritan (2)	143,700
Edith L. Boudreau (1)	202,000	Rose & Lucy (6)	84,000
Etta K. (2)	9,000	Rosemarie (6)	46,000
Eva II (5)	10,000	Rosie & Gracie (6)	100,000
Falcon (11)	30,500	St. Anna Maria (5)	26,000
Florence & Lee (2)	350,000	St. Anthony (1)	70,000
Flow (2)	509,000	St. Cabrini (8)	68,000
Frances R. (5)	85,500	St. John (5)	7,000
Frankie & Jeanne (11)	9,500	St. Joseph (2)	82,000
Gaetano S. (1)	105,000	St. Mary (11)	88,000
Gertrude E. (5)	4,000	St. Nicholas (1)	10,000
Giacoma (9)	15,000	St. Peter (5)	63,000
Holy Family (1)	10,000	St. Peter III (5)	55,000
Holy Name (6)	73,500	St. Providenza (7)	10,000
Ida & Joseph (7)	250,500	St. Rosalie (4)	167,000
Immaculate Conception (7)	64,000	St. Stephen (4)	44,000
Irma Virginia (12)	30,500	St. Terese (6)	48,000
Jackie B. (6)	35,000	St. Victoria (2)	87,000
Jackson & Arthur (4)	6,500	Salvatore & Grace (4)	199,000
J.B.N. (1)	16,000	Santa Lucia (6)	14,500
Jennie & Lucia (2)	57,000	Sebastian C. (6)	126,000
Josie II (12)	19,500	Serafina N. (5)	54,000
Judith Lee Rose (2)	640,000	Serafina II (5)	68,000
Killarney (3)	219,500	Star of the Sea (1)	35,000
Kingfisher (2)	415,000	Sunlight (3)	366,000
Kurta (5)	5,000	Teresa M. Boudreau (2)	430,000
Lady of the Rosary (4)	48,000	Tipsy Parson (12)	23,000
Linda B. (4)	7,500	Victoria (4)	2,500
Little Flower (6)	37,000	Villanova (1)	235,000
Brother Joe (1)	3,000	Virginia Ann (2)	15,000
Francis L. MacPherson (2)	19,000	White Owl (6)	7,000

Scallop Landings (Lbs.)

Brother Joe (1)	3,000	Sylvester Whalen (1)	11,000
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STONINGTON (Conn.)

America (1)	2,400	Lt. Thos. Minor (14)	8,700
Averio (5)	3,200	Little Chief (13)	7,700
Brett (15)	1,500	(4)	1,700

NEW YORK

Andrea G. (3)	126,800	Katie D. (2)	91,200
Carol-Jack (2)	84,000	Lady of Good Voyage (3)	114,500
Clipper (3)	125,000	Manuel P. Domingoes (3)	215,400
Cushmeyer (4)	174,400	Miriam A. (3)	86,000
Edith L. Boudreau (3)	132,800	Richard Lance (1)	6,000
Evelina M. Goulaert (3)	123,100	Star of the Sea (1)	69,000
Felicia (3)	122,500	Teresa & Jean (1)	36,500
Golden Eagle (3)	146,100	Tina B. (3)	156,600
Joseph S. Mattos (3)	121,300	Wild Duck (4)	188,700

Scallop Landings (Lbs.)

Muskegon (1) 3,000 S. No. 31 (2) 16,600
Norseman (1) 4,800

PORTLAND (Me.)

Agnes & Elizabeth (5)	144,900	Mary & Helen (2)	3,800
Alice M. Doughty II (2)	75,000	Medan (2)	430,000
Andarte (3)	325,000	Ocean Life (1)	367,000
Ariel (1)	9,300	Quincy (1)	201,500
Cathy & Aldie (4)	11,200	St. George (2)	410,000
Challenger (4)	26,000	St. Joseph II (1)	7,400
Charlotte M. (1)	4,000	Silver Bay (2)	256,000
Crescent (5)	32,800	Theresa R. (2)	176,000
Dorchester (2)	175,000	Vagabond (3)	140,200
Dorothy & Ethel II (3)	91,000	Vandal (3)	275,000
Elinor & Jean (5)	102,500	Vida E. (1)	3,700
Gulf Stream (2)	305,000	Vida E. II (1)	2,800
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New Tuna Clipper "Western King"

(Continued from page 17)

Propulsion power for the \$550,000 tuna clipper is furnished by an 1800 hp. Opposed-Piston Fairbanks-Morse Diesel. Auxiliaries include two Superior Model 40 Diesel generators with a 150 kw. (about 240 hp.) rating. The main engine will propel the clipper at a cruising speed of 11 knots, and the 95,000 gallons of Diesel fuel the ship carries are sufficient for 18,670 miles of cruising.

Normal crew of the ship will be 17 persons. A spacious galley finished in formica is capable of seating all hands at one meal. Bunk space for the crew is separated into two compartments amidships, each sleeping eight men, with private lockers. The chief engineer and second mate will share a second cabin with individual cabins forward for the captain and first mate.

Bait nets on the vessel were made by the T. V. Carter Net Co., of Long Beach. The two-winged net has an overall length of 150 fathoms (75 fathoms to a wing), width of 75 fathoms, and depth of 21 fathoms.

Ship-to-shore communication is provided by an RCA Radiomarine 150-watt high-frequency radiotelephone and an RCA Radiomarine Golden Line 50-watt radiotelephone. She is equipped with an SO8 Ranger modified radar, Raytheon "Fathometer" 1000-fathom and Raytheon "Fathometer" 200-ft. to 200-fathom depth sounders.

New Jersey Shellfishermen Harvesting New Clam Bed

A large bed of sea clams less than 30 miles southeast of Point Pleasant was discovered three months ago as a result of an exploration by the Soffron Bros. of Ipswich, Mass. The firm conducted the search with the aid of Axel B. Carlson, retired head of Point Pleasant Fisheries, and clam fishermen from Cape May and Atlantic City.

Capt. Carlson said the bed stretches over a 20-mile area along the Barnegat Ridge. Capt. Carlson's boat *Maridor* is harvesting the Point Pleasant clams. The average catch for a three-man crew over the first two weeks in March was 400 bushels or 40,000 pounds. Each trip covers a 24-hour period, if the weather is suitable.

Dredging Projects Proposed

A request for permission to solicit bids on four boat harbor dredging projects in Cape May County has been forwarded to Joseph E. McLean, Commissioner of the New Jersey Dept. of Conservation and Economic Development, by the State Bureau of Navigation. The plans are designed for greater safety and convenience for boatmen, whether they operate deep-sea commercial fishing boats or small pleasure craft.

Dredging is called for on the Delaware Bay side in the entrance of Bidwell's Creek at Reed's Beach; near Cape May, at the mouth of Cape Island Creek and including Devil's Beach at Schellengers Landing; at Sunset Lake, Wildwood Crest and at Stone Harbor.

Urge Preservation of Seed Oyster Beds

Dr. John J. McDermott of the Oyster Research Laboratory at Bivalve urges active conservation efforts to keep oysters on the dinner table. He stresses that preservation of natural seed beds is the industry's main problem today.

New Jersey ranks fourth in the nation in oyster production, supplying one-tenth of all oysters eaten in the United States. About 90 percent of the State's crop comes from Delaware Bay.

Studying Cause of Clam Blight

Surf clams, principal bait of the party boat fishing fleet and source of a growing canning industry, are dying in large numbers off the New Jersey coast. Clammers say the mysterious deaths which started during the last few days of February, have occurred from New York at least as far south as Beach Haven.

Dr. Thurlow C. Nelson has been asked by Dr. James R. Westman of Rutgers University to investigate the situation and see if he can find out the cause of the death of so many clams. Clammers and fishermen say they believe pollution is responsible.

Joseph J. Magill, co-owner of the dredger *Kingfisher* at Brielle, brought the situation to the attention of Dr. Westman. He reported that many of the clams dredged recently were in various stages of decomposition, and many others died within a short time. He added that he knows of no precedent for the deaths in 20 years of clamming.

Clinton Brower, chairman of the Barnegat Baymen's Assoc., reported that the blight has not affected the hard bay clams in the southern Ocean County area. In Wildwood, the Snow Canning Co. reported no dying clams have been seen off the southern coast.

Connecticut Fleet Gets Addition

Another boat has been added to the Stonington fishing fleet and is now operating there. The dragger *Myra and Julia*, Capt. Whitey Kolvy, made its first appearance last month, and is expected to become a regular among the Stonington draggers. She is operating out of Bindloss dock.

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Maryland Transplanting Seed Oysters to Public Bars

Governor McKeldin was on hand last month for a personal look as the Tidewater Fisheries Commission began transplanting some 100,000 bushels of young oysters to public bars of the State. John P. Tawes, chairman of the Commission, said there were 400 to 700 baby oysters in each bushel of shells and the operation should add 500,000 bushels to the State's oyster production within the next two years.

The area visited by the Governor covers approximately 300 acres, which have been planted with oyster and clam shells on which oyster spat strikes to begin the new life. It is one of four seed areas in the State and the only one which will be worked by the Commission this Spring.

Crabbers Expect Good Season

With mild sunny weather recently, lower Chesapeake Bay as well as Crisfield watermen have been getting ready for the 1957 hard crab season which opened in Maryland waters on April 1. Numbers of watermen have been busy in their back yards making their own crab pots, and the commercial crab pot makers also are busy.

Watermen report they anticipate a much better season this year than last. A number of small crabs have been brought up in the oystermen's tongs and dredges. It is felt that the presence of small crabs on the bottom at this time of the year may mean that they will be more plentiful this coming season.

According to packers, all indications are that the demand for crabmeat and soft-shell crabs will be good and the prices high.

Bill Bars Haul Seiners

The Senate last month tentatively approved a House measure barring haul seiners from trapping rockfish in a narrow channel running through the Susquehanna River Flats. It was expected that the Senate would give the measure final approval and that it would then be signed by the Governor.

Oyster Leasing Banned in Dorchester County

No further leasing of State oyster areas to private planters will be permitted in Dorchester County for a five-year period beginning June 1. Last month Gov. McKeldin signed into law a bill by Sen. Malkus of Dorchester, declaring the moratorium. It does not apply to any leases now in effect.

Striped Bass Bill Defeated

By a vote of 54 to 43, the lower House of the Maryland Legislature defeated legislation proposed by sportsmen

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New Bedford May Have New Plant Buying Trash Fish

Negotiations for a multi-million dollar fish products industry on New Bedford waterfront property were disclosed last month by Mayor Lawler. The new industry would be a joint operation of the Quaker Oats Co. of Chicago and the Merchants Cold Storage & Warehouse Co. of Providence, R. I.

The industry would provide a ready market for the tons of industrial fish landed in New Bedford annually by the local fleet. The Quaker Oats Co. would build a \$2,500,000 plant on five acres of land to process its line of pet food, and the storage firm would build a \$1,000,000 freezer plant beside it for storage of the finished product.

Negotiations between the two companies and the Industrial Development Commission are in the final stages, according to the Mayor. They depend on the city obtaining 64 acres of waterfront property within 60 days by a special act of Legislature. If the property is not obtained and prepared for construction, the Quaker Oats Co. will settle in another East Coast port.

Two Scallopers Collide

The 64-ft. scalloper *B & E* out of New Bedford sank March 16, four hours after she had collided with the New Bedford scalloper *Mary J. Landry*. The collision occurred 45 miles southeast of Nantucket during a heavy storm and dense fog.

The sunken craft was owned by Pal-Roy, Inc. and Bruno Stals of New Bedford, co-owner with W. Harold Pallatroni of New Bedford. George H. Landry of New Bedford is owner of the *Mary J. Landry*.

Quahog Dredging Temporarily Halted

A four-day voluntary suspension of dredging operations for quahogs in Clarks Cove, New Bedford, and in Dartmouth, was necessitated last month due to a temporarily glutted market. Tobias Cabral, shellfish warden, reported 2,062 bushels of quahogs landed from eight boats during the week prior to the shutdown. A normal weekly catch is between 700 and 800 bushels.

May Establish Fisheries Cooperative

The possibility of establishing a fisheries cooperative in New Bedford is being reconsidered by the Seafood Producers Assoc. The cooperative idea has been discussed and discarded several times in the past.

Members of the Association are interested in it as a means of combating falling prices, particularly those for scallops, and a five-man committee will be appointed to study details on how a cooperative should be set up in New Bedford.

Favor Taking Part in State Shellfish Program

City participation in a State program of shellfish propagation was approved tentatively by the City Council Shellfish Committee of New Bedford last month. The group voted to advise the Division of Marine Fisheries of the city's interest in rejoining the program, last participated in four years ago.

Compasses Installed

Wilfrid O. White & Sons 6" Constellation compasses have recently been installed in the dragger *Carl Henry* and the scalloper *Camden* out of New Bedford.

Capt. Daniel F. Lynch

Capt. Daniel F. Lynch, 85, who was taken prisoner in 1918 by a German submarine which sank 10 fishing vessels on Georges Bank, died last month in New Bedford after a brief illness. He began fishing out of New Bedford in 1908, and is believed to have been one of the earliest groundfishermen from this port. His vessels included the *Rita* and the *Anastasia E*, a scalloper and a dragger.

Provincetown Trap Fishing Business Bought by Snelling

The purchase of 12 fish traps, three trap boats and three scows by H. B. W. Snelling of Provincetown, was recently announced. Mr. Snelling purchased the equipment from Atlantic Coast Fisheries, Inc., and it will be used by him doing business as the Consolidated Traps.

The two trap boat captains will include Captains Manuel Souza and Ernest Tasha. They will unload their fish at Provincetown's Town Wharf and at the tower off the North Truro plant.

Negotiations were nearly completed last month on the sale of the Consolidated freezer plant of the Atlantic Coast Fisheries to Mr. Snelling. The plant will become known as Consolidated Freezer, Inc., and will continue to furnish ice to all customers, with the main purpose being to use the other four stories for the freezing and storage of fish.

The freezer will be modernized, including installation of new freezer pipes in the second floor and installation of conveyors throughout. Additional help will be employed for handling fish, and the personnel now employed is expected to be retained.

Application has been made for dredging a channel to the freezer tower at North Truro to enable boats to unload there at lowest water. Dredging is expected to start about May 1, and the channel will be ready for the Summer months. The firm plans to purchase all types of fish.

Wants Consumers to Try Mussels

According to Jan Hahn, official at the Woods Hole Oceanographic Institution, Cape Cod's clam industry could be helped by the mussel which is plentiful in this area. Mr. Hahn reported that instead of depleting the rapidly diminishing clam beds of the United States, Americans would do themselves a favor by trying out the mussel, an overlooked source of seafood.

Mr. Hahn states that mussels taste somewhat like steamed clams, but with a lot more body. A program in 1922 was started to educate the American public to acquire a taste for mussels, but this met with little success.

To Study Georges Bank Currents

On or about April 10 the Fish & Wildlife Service and the Woods Hole Oceanographic Institution will undertake a detailed study of the non-tidal currents on Georges Bank. From the drift of bottles released during the 1953, 1955 and 1956 spawning seasons, it has been possible to outline the general circulation pattern over Georges Bank and the Gulf of Maine, and the consequent drift of eggs and larvae spawned in these areas.

To obtain a more detailed knowledge of the drift pattern, it is planned to limit the area of investigation to the northeast part of Georges Bank, and in addition to drift bottles, to set out 4 transponding drift buoys in the area of maximum spawning. These buoys will be allowed to drift for period of approximately 9 weeks. However, mariners are requested to report the buoys when sighted and include information pertaining to time, date, position and code letter on the buoy.

Information obtained from the returns of these buoys and bottles will be used to answer the following questions:

What happens to the billions of haddock eggs spawned each Spring on Georges Bank?

Does the fish population on Georges Bank come from eggs spawned there or from some other area?

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Allis-Chalmers, Buda Division, 1135 S. 70th St., Milwaukee 1, Wis.
American MARC Inc., 1601 W. Florence Ave., Box 549, Inglewood, Calif.
Caterpillar Tractor Co., Peoria, Ill.
Cummins Engine Co., Columbus, Ind.
Detroit Diesel Engine Div., General Motors Corp., Series 51, 71 and 110 Marine Diesels, 13400 W. Outer Drive, Detroit 28, Mich.
Enterprise Engine & Machinery Co., 18th and Florida Sts., San Francisco 10, Calif.
Fairbanks, Morse & Co., Chicago, Ill.

Ford Marined Engines, Oscos Motors Corp., 3627 N. Lawrence St., Philadelphia 40-AF, Pa.
Gray Marine Motor Co., 646 Canton Ave., Detroit, Mich.

P&H Diesel Engine Division Harnischfeger Corp., 500 S. Main Street, Crystal Lake, Illinois.
Hercules Motors Corp., 101 Eleventh St., S.E., Canton, Ohio

Lister-Blackstone, Inc., 42-32 21st St., Long Island City 1, N. Y.
H. O. Penn Machinery Co., Inc., East River and 140th St., New York, N. Y.
Perkins-Milton Co., Inc., 376 Dorchester Ave., South Boston 27, Mass.

Red Wing Marine Corp., Red Wing, Minn.
Waukesha Motor Co., Waukesha, Wis.
White Diesel Engine Division, White Motor Co., Springfield, Ohio.

Wolverine Marine Dept., The Coulter & McKenzie Machine Co., 771 Water St., Bridgeport 3, Conn.

ENGINES—Gasoline
Marine Engine Division, Chrysler Corp., 7700 Russell St., Detroit 11, Mich.

Ford Marined Engines, 3627 N. Lawrence St., Philadelphia 40-AF, Penna.

Gray Marine Motor Co., 646 Canton Ave., Detroit, Mich.

Nordberg Gasoline Marine Engines, Oshkosh, Wis.
Norseman Marine, 105 Nevada St., Oshkosh, Wis.

Red Wing Marine Corp., Red Wing, Minn.

ENGINES—Outboard
Evinrude Motors, 4670 N. 27 St., Milwaukee 16, Wis.

Johnson Motors, 6300 Pershing Rd., Waukegan, Ill.

Kiekhaefer Corp., Fond du Lac, Wis.

ENGINE CYLINDERS—Diesel

Porous Chrome Plated: Van Der Horst Corporation of America, Olean 3, N. Y.

FISH KNIVES

R. Murphy Co., Ayer, Mass.

FISHING GEAR

The Harris Co., Portland, Me.

Westerbeke Fishing Gear Co., Inc., 279 Northern Ave., Boston, Mass.

FLARE SIGNALS

Kilgore Inc., International Flare Signal Div., Westerville, Ohio

FLEXIBLE HOSE LINES

Aeroquip Corp., 300 South East Ave., Jackson, Mich.

FLOATS

Dale Plastics Corp., 5736 12th St., Detroit 8, Mich.

J. H. Shepherd Son & Co., Elyria, Ohio.

B. F. Goodrich Sponge Products Division, Shelton, Conn.

The Linen Thread Co., Inc., 418 Grand St., Paterson 1, N. J.

GENERATING SETS

Allis-Chalmers, Buda Division, 1135 S. 70th St., Milwaukee 1, Wis.

Detroit Diesel Engine Div., General Motors Corp., Series 51, 71 and 110 Marine Diesels, 13400 W. Outer Drive, Detroit 28, Mich.

GENERATORS

Safety Industries, Inc., Box 904, New Haven 4, Conn.

HOOKS

O. Mustad & Son, Oslo, Norway.

"Pflueger": Enterprise Mfg. Co., 110 Union St., Akron, Ohio.

INSULATION

"Styrofoam" (Expanded Dow Polystyrene): The Dow Chemical Co., Midland, Mich.

LORAN

Edo Corporation, College Point, L. I., N. Y.
Radiomarine Products, a Division of RCA, 75 Varick St., New York 13, N. Y.

Sperry Gyroscope Co., Division of the Sperry Corp., Great Neck, N. Y.

MOTOR GENERATORS

Safety Industries, Inc., P.O. Box 904, New Haven 4, Conn.

NETS

W. A. Augur, Inc., 35 Fulton St., New York.

The Carron Net Co., 1623 Seventeen St., Two Rivers, Wis.

The Fish Net & Twine Co., Menominee, Mich.

Hope Fish Netting Mills, Inc., Hope, R. I.

The Linen Thread Co., Inc., 418 Grand St., Paterson 1, N. J.

Joseph F. Shea, Inc., East Haddam, Conn.

A. M. Starr Net Co., 10 Summit Street, East Hampton, Conn.

Western Net Shop, Freeport, Texas.

NET LIFTERS

Crossley Co., 16 West 5th St., Erie, Pa.

OIL—Lubricating

Gulf Oil Corp., Gulf Bldg., Pittsburgh, Pa.
Socony Mobil Oil Co., Inc., Marine Sales Dept., 26 Broadway, New York 4, N. Y.

Standard Oil Co. of California, Standard Oil Bldg., San Francisco, Calif.

PAINTS

The Federal Paint Co., Inc., 33 Rector St., New York 6, N. Y.

Henderson & Johnson, Inc., Gloucester, Mass.

International Paint Co., Inc., 21 West St., New York, N. Y.

Pettit Paint Co., Belleville, N. J.

Tarr & Wonson Ltd., Gloucester, Mass.

C. A. Woolsey Paint & Color Co., Inc., 229 East 42nd St., New York 17, N. Y.

PLYWOOD

Douglas Fir Plywood Assoc., Tacoma 2, Wash.

PRESERVATIVES

Robeson Preservo Co., 214 Merchant St., Port Huron, Mich.

PROPELLERS

Columbian Bronze Corp., Freeport, N. Y.

Federal Propellers, Grand Rapids, Mich.

Ferguson Propeller and Reconditioning Co., 1132 Clinton St., Hoboken, N. J.

Hyde Windlass Co., Bath, Maine.

Michigan Wheel Co., Grand Rapids, Mich.

PROPELLER RECONDITIONING

Ferguson Propeller and Reconditioning Co., 1132 Clinton St., Hoboken, N. J.

PROPELLER REPAIRS

Ferguson Propeller and Reconditioning Co., 1132 Clinton St., Hoboken, N. J.

PROPELLER SHAFTS

The American Brass Co., Waterbury 20, Conn.

The International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.

PUMPS

The Edson Corp., 334 So. Water St., New Bedford, Mass.

Jabsco Pump Co., 2031 N. Lincoln St., Burbank, Calif.

Sudbury Laboratory, South Sudbury, Mass.

RADAR

Bendix Aviation Corp., Pacific Div., 475 Fifth Ave., New York 17, N. Y.

Decca Radar Inc., 539 West 25th St., New York 1, N. Y.

Edo Corporation, College Point, L. I. N. Y.

Lavoie Laboratories, Inc., Morganville 16, N. J.
Radiomarine Products, a Division of RCA, 75 Varick St., New York 13, N. Y.

RADIO TELEPHONES

Applied Electronics Co., Inc., 1246 Folsom St., San Francisco, Calif.
Bludworth Marine, 92 Gold St., New York 38, N. Y.
Hudson American Corp., 25 West 43rd St., New York 18, N. Y.
Kaar Engineering Corp., Palo Alto, Calif.
Radiomarine Products, a Division of RCA, 75 Varick St., New York 13, N. Y.

RANGES—Galley

Harry C. Weiskittel Co., Inc., 4901 Pulaski Highway, Baltimore 24, Md.

REDUCTION GEARS

Auto Engine Works, Inc., 333 (A) North Hamline Ave., St. Paul 4, Minn.
Snow-Nabstdt Gear Corp., Welton St., Hamden, Conn.
Twin Disc Clutch Co., 1341 Racine St., Racine, Wis.
The Walter Machine Co., Inc., 84 Cambridge Ave., Jersey City 7, N. J.
Western Gear Corp., P. O. Box 182, Lynwood, Calif.

RUST PREVENTIVES

Sudbury Laboratory, South Sudbury, Mass.

SHIPBUILDERS

Blount Marine Corp., Warren, Rhode Island.
Diesel Engine Sales Inc., St. Augustine, Fla.
Harvey F. Gamage, So. Bristol, Maine.
Gladding-Hearn Shipbuilding Corp., 1 Riverside Ave., Somerset, Mass.
Morehead City Shipbuilding Corp., Morehead City, N. C.
Frank L. Sample & Son, Inc., Boothbay Harbor, Me.

SILENCERS

The Maxim Silencer Co., 126 Homestead Ave., Hartford, Conn.

STARTING FLUID

Spray Products Corp., P. O. Box 584, Camden 1, N. J.

STEERING GEAR

The Edson Corp., 334 So. Water St., New Bedford, Mass.

Metal Marine Pilot, 342 Golden Gate Ave., Tacoma, Wash.

STERN BEARINGS

"Goodrich Cutless": Lucian Q. Moffitt, Inc., Akron 8, Ohio.
Byron Jackson Tools, Inc., Box 2493, Terminal Annex, Los Angeles 54, Calif.

TWINE

Brownell & Co., Inc., Moodus, Conn.

V-BELTS

Flexible Steel Lacing Co., 4683 Lexington St., Chicago 44, Ill.

VOLTAGE REGULATORS

Safety Industries, Inc., Box 904, New Haven 4, Conn.

WINCHES

Bodine & Dill (formerly Hettinger Engine Co.), Bridgeton, N. J.
Hancock Marine, 1567 No. Main St., Fall River, Mass.
Hathaway Machinery Co., Inc., New Bedford, Mass.
Stroudsburg Engine Works, 62 North 3rd St., Stroudsburg, Penn.

WIRE ROPE

American Steel & Wire Division, United States Steel, Rockefeller Bldg., 614 Superior Ave., Cleveland 13, Ohio.
John A. Roebling's Sons Co., Trenton 2, N. J.
Wickwire Spencer Steel Division of The Colorado Fuel & Iron Corp., Palmer, Mass.

FOREIGN BAILINGS

SILVER COD AWARD of British Trawlers' Federation for year 1956 has been presented to Captain and crew of Hull deep-water trawler *Lancellia*. She landed 2,871 metric tons of fish in 18 trips, mostly to Bear Island grounds, averaging 18 days per trip.

PANAMA FISHERY CO-OP has contracted for space with an operator of an International airline for shipments of frozen pink shrimp from Panama City to Miami, Florida. The firm requested guaranteed space, consisting of four planes a week, to transport 17,600 pounds of frozen shrimp per shipment for a period of approximately two months.

BRITISH FACTORYSHIP, which was developed to fillet and freeze fish at sea, has landed 5,000 metric tons of fillets, 1,000 tons of fish meal, and 100 tons of cod-liver oil during 2½ years of continuous operations. Trawling is done from the stern, and the fish usually are frozen and in the storage holds about six hours after capture. It is generally conceded that for eating qualities this frozen-at-sea fish is unrivaled.

MEXICAN EXPORT DUTIES have been increased about 10 percent for fresh, iced and frozen shrimp from the Gulf of Mexico and about 15 percent for shrimp from the West Coast. The increase was effected by raising official prices.

Export duty on fresh or refrigerated cooked Mexican spiny lobster has been increased 10.5 percent.

THAILAND-JAP FISHING BASE may be constructed on Terutea Island, off western coast of South Thailand, with help of Japanese Overseas Fishery Cooperative Association. Officials will survey possibilities of developing new fishery resources, construction of a fishing base to accommodate 100 fishing vessels, and facilities for cold storage, processing, and canning.

ECUADOR HAS EXCLUDED foreign shrimp vessels and boats not built in that country from her waters. National companies which now hire foreign flag shrimp vessels under Government permits may continue to use them provided the boats are nationalized when the permits expire.

JAPANESE EXPORTS of fish and fish products rose 26.6 percent from 1955 to 1956, and value of those exports rose 59.5 percent. Total fish and fish product exports in 1956 amounted to 196,363 metric tons, valued at U. S. \$120.6 million.

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BOAT & GEAR MART

Classified Advertising Rates: \$1.00 per line, \$5.00 minimum charge. Count 9 words to a line. Closing date, 25th. National Fisherman, Goffstown, N. H.

FOR SALE

Sardine carrier or freighter, 72' x 16' x 6', new 1944. Hard pine planking, oak frames—Diesel powered. Excellent condition—want offer. Located in Maine. Party boat, 42' x 12' x 3', oak and pine—power 145 hp. Chrysler Royal—speed 10-12 miles. Price \$7,000. Mass. 30' x 9'6 sport fisherman, new 1952, oak and cedar, power 130 hp. Chris-Craft—all equipped with out-riggers, fighting chairs, harpoon, etc. \$5,900. Located in Conn. Cruisers, auxiliaries, draggers, freighters and tankers. Write us your requirements. KNOX MARINE EXCHANGE, CAMDEN, MAINE.

DRAGGER "LINDY" FOR SALE

Dragger *Lindy*, Stonington-built, 40' long, 13' wide. Bendix depth sounder, Apelco radio. \$6500. Now fishing at Point Pleasant, New Jersey. Marty Lukin, 47-8th Ave., Seaside Park, New Jersey.

OIL-BURNING RANGE FOR SALE

Oil-burning range with oven, manufactured by National Iron Works. Over-all stove dimensions: 32" long x 22" wide x 36" high. White porcelain front. Fiberglas insulated and complete with electric blower and oil regulator. Uses No. 2 fuel. Original cost over \$300.00. Our price—\$85.00. Unused surplus. Write for our catalogue containing four million dollars worth of Diesel engines, Diesel generators, electric motors, air compressors, pumps, blowers, etc. Picture on request. Bobby Benjamin, P.O. Box 4842, Normandy Branch, Miami Beach, Fla.

SURPLUS MARINE RADIOS

Manufactured by RCA, known as Model ET 8012, 10 channel, 75 watt, 110 DC input. These radios are used, but have been thoroughly overhauled by our competent radio repair man, and are priced at \$750.00 each. Bobby Benjamin, P.O. Box 4842, Normandy Branch, Miami Beach, Fla.

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Many sizes and types, including Monterey purse seiners, tugs, barges, salmon and albacore trollers, ranging from \$1,000 upward; fishing gear, such as salmon power gurdies, stainless steel tuna hooks, Wood Freeman automatic pilots; trolling wire; Donald Woodward, Licensed Broker and Wholesale Marine Distributor, Moss Landing, Calif. Tel. Castroville NEWton 3-2620. (Closed Sundays).

STARTERS AND ENGINES FOR SALE

Starters—surplus new 12-volt, RH, heavy duty. Fit G.M., Buda, Superior, Hercules Diesels, \$20 each, or \$15 each, 10 or more. G.M. 4 and 6-71 Diesels. Fairbanks-Morse 36A with 2:1, 6 cyl., 4 1/4" x 7", very good condition—\$800. Superior 4 cyl., MDB, 5" x 7", very good condition—\$800. Hercules DWXDS, 150 hp., 2:1, rebuilt—\$1300. Chryslers, Chris-Crafts, rebuilds. Helwege Marine Engine Co., 741 S. Ocean Ave., Freeport, N. Y. Telephone FR. 8-0583.

OYSTER DREDGE BOAT FOR SALE

Klondike, 55.2 x 17.5 x 5.8, 1000 bu. capacity. 12-volt system. Ready to go to work. Beacon Oyster Co., Wickford, R. I.

G. M. DIESEL MARINE ENGINES

Completely Rebuilt and Guaranteed

"6-71" with 1 1/2 to 1 Twin Disc—\$2500. "4-71" with new 1 1/2 to 1 Borg Warner—\$1975. 2 to 1 or 3 to 1 slightly higher.

DIESEL CORP. OF N. J.

1473-79 McCarter Highway, Newark 4, N. J.

Large stock of engines and parts
Humboldt 2-7881

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Propeller type, for circulation or exhaust. 24 volts DC, with magnetic starter, each \$24.95

Centrifugal fans, operating on 32 volts DC, each \$17.50

THE BOSTON METALS COMPANY

313 E. Baltimore St., Baltimore 2, Md.

CURTIS 7-5050

GOVERNMENT SURPLUS EQUIPMENT LIST

Buy surplus direct from Government at tremendous savings. Boats, motors, gear, machinery, power tools, truck, jeep, hundreds others. List \$1.00. Surplus Bulletin, Box 169NAE, East Hartford 8, Conn.

TWO ENGINES — WOOD HULL

400 (at 300) Atlas Imperial engine, 13 x 16, 2000 hours—complete in good order—with extra parts, reasonable.

Murphy Diesel, 96 hp. (new), 4 cyl., 5 1/2" x 6 1/2", full load rpm. 1200, price less than half list.

Excellent hull reg. 91 x 21 x 10.7, 145 tons, completely equipped throughout dragger, except main engine. Price 1/3 replacement.

Rocky Bay Fishing Co., 75 Central St., Boston 9, Mass. Liberty 2-4366.

ENGINES FOR SALE

Murphy ME 165 2:1 gear. Can be seen in operation. Buda Model 6DCMR-844, 125 hp., 3:1 gear. Mack ENDM-605D 100 hp., 4.38:1 gear. Cleveland 8-268A. Bad crank, reduction gear overhauled. Can be rebuilt or used for parts. For information write Virginia Tractor Co., Box 1638, Richmond, Va. Phone Richmond 5-9138, R.A. Amos.

PARTS FOR SALE

K.N.A.—K.N.B. Superior heads, new in crates—Buda, Cummins and all Model G.M.C. parts, gaskets, etc. Pumps, injectors. Call or write New England Diesel Service, 537 East Third St., So. Boston, Mass. Tel. Andrew 8-1402.

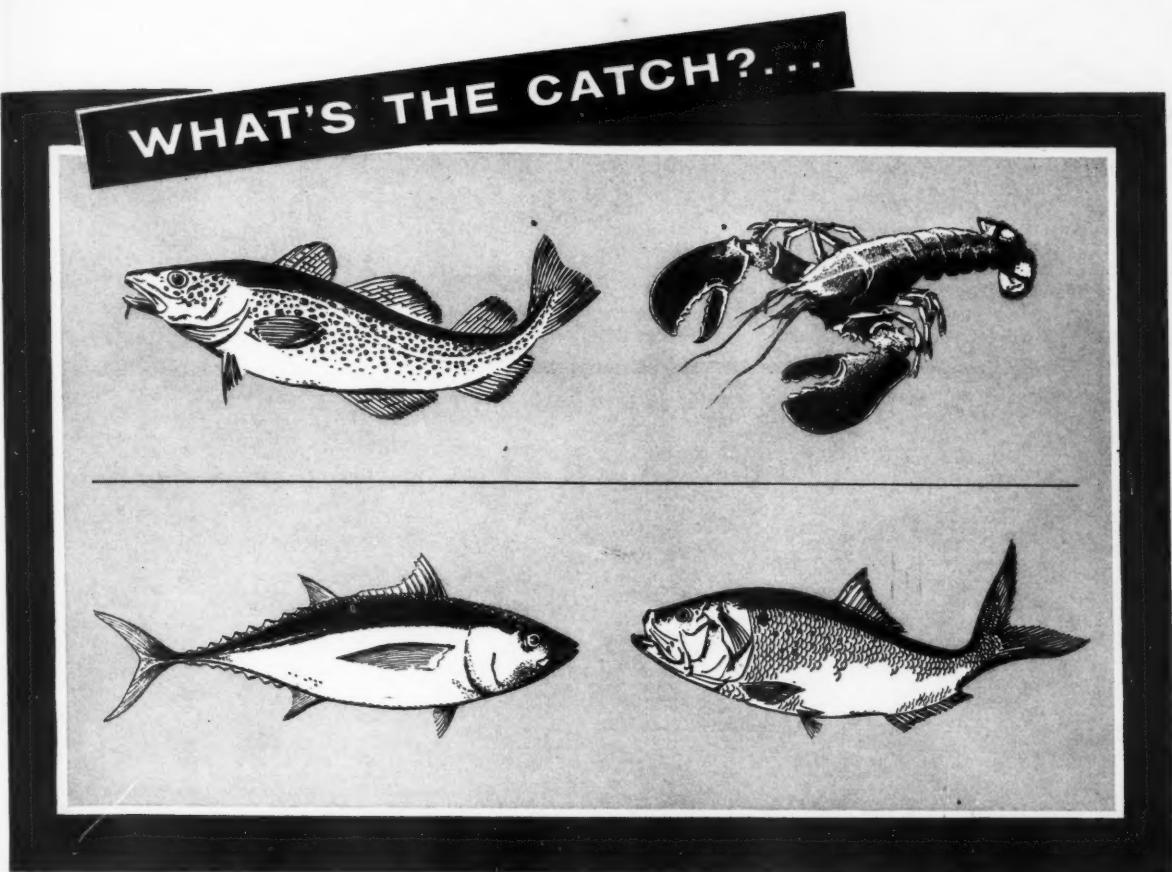
THREE DRAGGERS FOR SALE

40' western style, flush-deck dragger with complete change-over equipment for carrying passengers. Built—1956 by Gamage. 6-71 GM Diesel, auxiliaries, and electronics equipment. Owner retiring. Price—\$20,000. Western dragger 60' x 17' x 8'. Substantially built in 1946. 180 hp. Cummins. Complete scalloping, dragging, and electronic gear. Available immediately. Price—\$32,000. Eastern dragger, 68' x 17' x 10', Gamage-built in 1945. Heavy construction, rigged both sides, 240 hp. Caterpillar. Fully equipped including radar. Price—\$45,000. These are the best of their type and size. Subject to close offers. Others, all types, sizes and prices. Edwin B. Athearn, Marine Broker, Woods Hole, Mass. Box 727, Tel. Falmouth 2074.

WESTERBEKE FISHING GEAR CO., INC.

Grimsby Trawls
Wesco Cod-end Protectors
Wire and Manila ropes

— Distributors — Marine Hardware
Boston 10, Mass. Danforth Anchors
Also store and warehouse Gloucester, Mass. Paints — Fittings



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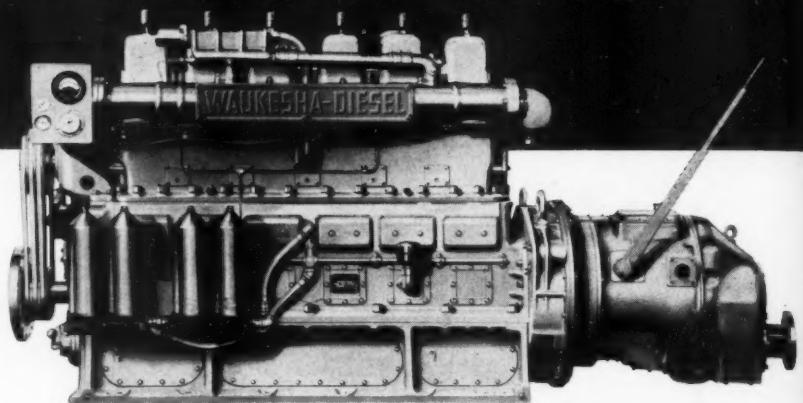
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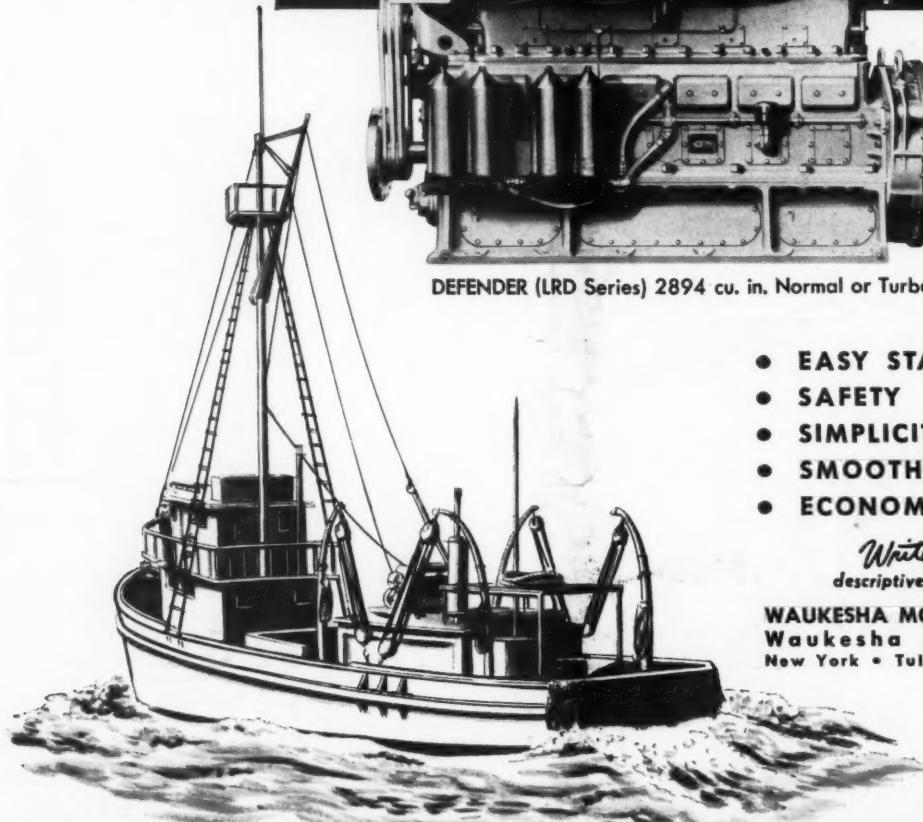
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WAUKESHA
normal
and
turbocharged
diesel
marine
engines

Engine Model	Engine Type	No. Cyls.	Bore and Stroke	Displ. Cu. In.	Max. Torque at Rpm	CONTINUOUS 24-Hour Duty	INTERMITTENT 1-Hour Duty
RELIANCE	Normal	12	8½ x 8½	5788	4330 @ 600	640 hp @ 1100 rpm	745 hp @ 1200 rpm
	Turbo	12	8½ x 8½	5788	5070 @ 900	840 hp @ 1100 rpm	1020 hp @ 1200 rpm
DEFENDER	Normal	6	8½ x 8½	2894	2140 @ 600	320 hp @ 1100 rpm	375 hp @ 1200 rpm
	Turbo	6	8½ x 8½	2894	2540 @ 1000	425 hp @ 1100 rpm	510 hp @ 1200 rpm
WANDERER	Normal	6	7 x 8¼	1905	1383 @ 600	225 hp @ 1100 rpm	265 hp @ 1200 rpm
	Turbo	6	7 x 8¼	1905	1730 @ 1000	290 hp @ 1100 rpm	350 hp @ 1200 rpm
RESOLUTE	Normal	6	6½ x 6½	1197	845 @ 1000	175 hp @ 1400 rpm	220 hp @ 1600 rpm
	Turbo	6	6½ x 6½	1197	1062 @ 1600	220 hp @ 1400 rpm	290 hp @ 1600 rpm
VIGILANT	Normal	6	5½ x 6	779	584 @ 1000	135 hp @ 1600 rpm	165 hp @ 1800 rpm
	Turbo	6	5½ x 6	779	706 @ 1800	170 hp @ 1600 rpm	220 hp @ 1800 rpm
CUTWATER	Normal	6	4½ x 5	426	328 @ 1600	90 hp @ 1800 rpm	110 hp @ 2000 rpm
	Turbo	6	4½ x 5	426	400 @ 1800	110 hp @ 1800 rpm	135 hp @ 2000 rpm

